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A Treatise on Cataract, intended to determine the operations required by different forms of that Disease, on physiological principles. By Philip Chilwell De La Garde, Member of the Royal College of Surgeons, &c. pp. 213. London, 1821.

Pharmacopœia Equina, or New Pharmacopœia for Horses. By Bracy Clark, F. L. S. of the Academy of Sciences of Paris, &c. pp. 26. London, 1819.

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A Report of Cases of Aneurism, in which Operations were performed in the Richmond Surgical Hospital, Dublin. By Charles H. Todd, one of the Senior Surgeons to that Establishment, and one of the Professors of Anatomy and Surgery to the Royal College of Surgeons in Ireland. pp. 48. Dublin, 1821.

Adresse a tous les Médecins sur la Necessité de conserver le Nom officinal des Medicamens, par Hufeland. pp. 38. Berlin, 1821.

Miscellaneous Works of the late Robert Willan, M. D. &c. edited by Ashby Smith, M. D. Licentiate of the Royal College of Physicians in London, &c. &c. pp. 488. London, 1821.

Dell' Infammazione e della Febbre Continua, Considerazioni Patologico-Pratiche di G. Tommasini, Professore di Clinica Medica nella P. Universita di Bologna, ed uno dei Quaranta della Societa Italiana delle Scienze. pp. 272. Pisa, 1820.

Remarks upon Morbus Oryzeus, or the Disease occasioned by the employment of Noxious Rice as food in the district of Jessore. By Robert Tytler, M. D. M. A. S. Assistant Surgeon, Zillah Allahabad, and Superintendant of Vaccine Inoculation of that Station. Part I. pp. 147. Part II. pp. 152.

Practical Observations on the Means of preserving the Health of Soldiers in Camp and in Quarters, with Notes on the Medical Treatment of several of the most important Diseases which were found to prevail in the British Army during the late War. By Edward Thornhill Luscombe, M. D., &c. Second Edition, pp. 154. Edinburgh, 1821.

A Treatise on the Diseases of the Chest, and their diagnosis, by means of the Stethoscope, with plates, translated from the French of R. J. H. Laennec, M. D., with a Preface and Notes. By John Forbes, M. D. &c. pp. 437. London, 1821.

On the Nature, Symptoms, and Treatment of the different species of Amaurosis, illustrated by Cases. By John Stevenson, Esq. Surgeon-Oculist and Dentist to his Royal Highness the Duke of York, &c. &c. &c. pp. 277. London, 1821.

A Treatise on Acupuncturation, a Surgical Operation originally peculiar to the Japonese and Chinese, &c. called by them Zin-King, now introduced into European practice, with directions for its performance, and cases illustrating its success. By James Morss Churchill, Member of the Royal College of Surgeons in London. pp. 86. London.

A Treatise on Dyspepsia or Indigestion, with Observations on Hypochondriasis and Hysteria. Second edition, enlarged by James Woodforde, M. D. Castle Cary, Somerset, Member of the Royal Medical Society, Edinburgh, &c. pp. 138.

Letters addressed to a Young Physician, on the Nature and Treatment of Diseases commonly termed Nervous, with Cases. By Donald Maclean, M. D. late Surgeon to the Fourth Fencible Infantry, and Assistant Surgeon to the Forces. pp. 72. Edinburgh, 1821.

A System of Practical Nosology; to which is prefixed, a Synopsis of the Systems of Sauvages, Linnæus, Vogel, Sagar, Macbride, Cullen, Darwin, Crichton, Pinel, Parr, Swediaur, Young and Good, with references to the best Authors on each Disease. By David Hosack, M. D. &c. Professor of the Institutes and Practice of Medicine in the University of New York, &c. &c. pp. 386. New York, 1821.

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Disquisitio Quæstionis Academiæ de discrimine Sexuali jam in Seminibus Dioicarum Apparente, Præmio Regis ornata additis quibusdam de sexu plantarum argumentis generalibus. Auctore Hermanno Frederico Autenrieth, Med. Doc. pp. 61. Tubingæ, 1821.

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A Treatise on Diseases of the Nervous System. Part the First; comprising Convulsive and Maniacal Affections. By J. C. Prichard, M.D., late of Trinity College, Oxford, Fellow of the Linnean and Wernerian Societies, &c., Physician to St Peter's Hospital and the Bristol Infirmary. 8vo. London, 1822.

Observations on those Diseases of Females which are attended by Discharges. Illustrated by Copperplates of the Diseases. By Charles Mansfield Clarke, Member of the Royal College of Surgeons, London. Part II. London, 1821.

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A Description of the Diseases of the Human Eye, illustrated with numerous Delineations from Nature, and accompanied with Practical Observations on their Treatment. By Alexander Watson, Fellow of the Royal College of Surgeons of Edinburgh. Vol. I. Edinburgh, 1822.

An Account of the New Institution in Edinburgh for the Application of Vapour, Mineral Water Baths. &c. &c. No. 8, Broughton Street. With the History of the successful Cases that have occurred at it in the following Diseases, &c. Edinburgh, 1822.

The Introductory Lecture of a Course upon State Medicine, delivered in Mr Grainger's Theatre, Southwark, on Thursday, November 1st, by John Elliotson, M.D., &c. &c. London, 1821.

Letter to James Russell, Esq., Professor of Clinical Surgery in the University of Edinburgh, by the Author of "Observations on the Utility and Administration of Purgative Medicines. Edinburgh, 1821.

Medical Researches on Caloric or Dry Baths, on Vapour Baths, and on General or partial Fumigations. By Paul Assalini, M.D. Translated from the Italian by John Short, M.D., of the University of Edinburgh, and Member of the R. C. of Medicine, Leghorn. Printed by Glaucus Masi, 1820.

Osservazioni Prattiche su l'Uso delle Fumigazioni solforose; di G. de Carro. Vienna, 1819.

We are requested by the Author to insert the following list of Errata in Dr Campbell's Paper.

In line 29,	page 197,	*for* as,	*read* so.
5,	— 199,	*for* La,	*read* Le.
27,	— —,	*for* Doublet,	*read* Doulcet.
6,	— 210,	*for* 5,	*read* 26.
7,	— —,	*for* 7,	*read* 9.
27,	— 214,	*for* aq. ant. amen.,	*read* aq. acet. ammon.
29,	— 216,	*for* Pelvis,	*read* Pubis.
11,	— 219,	*for* Dr Moir,	*read* Dr Moore.
19,	— 220,	*for* in,	*read* on.
14,	— 222,	*for* in,	*read* on.
31,	— 224,	*for* Mr Morris,	*read* Mr Mercer.

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The following Publications have been transmitted to us:

A Letter to Charles Henry Parry, M.D. F.R.S., &c. &c. on the Influence of Artificial Eruptions in certain Diseases incidental to the Human Body: With an Inquiry respecting the probable Advantages to be derived from further Experiments. By Edward Jenner, Esq. M.D. LL. D. F.R.S. M.N. T.F., &c. &c. &c. and Physician Extraordinary to the King. 4to. London, 1822.

Chisholm (Colin) A Manual of the Climate and Diseases of Tropical Countries. 8vo. Lond. 1822.

Palin (Ralph) Observations on the Influence of Habits and Manners, National and Domestic, upon the Health and Organisation of the Human Race. 8vo. Lond. 1822.

Thacher (James) The American New Dispensatory. 4th edition. 8vo. Boston, 1821.

Hamilton (R. D.) The Principles of Medicine on the Plan of the Beconian (Baconian) Philosophy. 8vo. Lond. 1821.

Jeffreys (Julius) An Inquiry into the Comparative Forces of the Extensor and Flexor Muscles, connected with the Joints of the Human Body. 8vo. Lond. 1822.

Wilkinson (J. H.) Remarks on Cutaneous Diseases. 8vo. Lond. 1822.

A Chart of Pharmaceutical Chemistry; exhibiting the Names of the Various Articles of the London Pharmacopoeia in contrast with these with which they are incompatible. By Rees Price, M. D.

Price (Rees) An Epitome of Pharmaceutical Chemistry. 12mo. Lond. 1821.

A Pharmaceutical Guide. By the Author of the Student's Manual. 12mo. Lond. 1822.

Essai Geologique sur l'Ecosse. Par A. Boué, M. D. 8vo. Paris.

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Tommasini (Giacomo) Del Metodo di Curare, dell' Insegnamento Medico-Clinico e di Alcuni stabilimenti di pubblica Beneficenza observati in Inghilterra. 8vo. Bologna, 1821.

Lettera di Giacomo Clark, M. D. della Università di Edimburgo al Ch. Sig. Professore Tommasini, intorno alle sue osservazioni sulla Scuola Medico-Clinica di Edimburgo, 8vo. Roma, 1822.

Hortus Kiliensis. Auct. F. Weber. 8vo. Kiliæ, 1822.

De Sede et Causis Vesaniæ Diss. Inaug. Auct. Francisco Francke. 4to. Lipsiæ, 1821.

De Natura Irritabilitatis. Diss. Inaug. Auct. Mauritio Harper. 4to. Dresdæ, 1821.

Allgemeine Pathologie des menschilichen Körpers. Von Dr F. G. Gmelin. 2te vermehrte und verbesserte Ausgabe. 8vo. Stuttgart, 1821.

Sammlung medizinisch—praktischen Dissertationen von Tubingen; in Uebersetzungen herausgegeben. Von J. S. Weber. 1stes & 2tes Stuck. 8vo. Tubingen, 1820.

Die Krankheiten des Herzens, systematisch bearbeitet und durch eigne Beobachtungen erläutert. Von D. Friedrich Ludwig Kreysig; Konigl. Sächs. Leibartzt und Hofrath 4. Bände. 8vo. Berlin, 1814-17.

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The Study of Medicine. By John Mason Good, M.D. F. R. S. Mem. Am. Phil. Soc. and F. L. S. Philadelphia. In four volumes 8vo. London, 1822.

The Seats and Causes of Diseases investigated by Anatomy, containing a great variety of Dissections, with Remarks, by J. B. Morgagni, Chief Professor of Anatomy at Padua, &c. Abridged and Elucidated with copious Notes. By William Cooke, Member of the Royal College of Surgeons, London, &c. In two volumes 8vo. London, 1822.

First Report of the General Board of Health in the City of Dublin, most respectfully submitted to the Most Noble Richard, Marquis Wellesley, Lord Lieutenant-General and Governor of Ireland. 8vo. Dublin, 1822.

Eighth Annual Report of the Directors of the Glasgow Asylum for Lunatics. 8vo. Glasgow, 1822.

Analytic Physiology. By Samuel Hood, M. D. A. B. 8vo. Liverpool, 1822.

Observations on some points relating to the Anatomy, Physiology, and Pathology of the Nervous System. By Joseph Swan, Member of the Royal College of Surgeons, &c. 8vo. London, 1822.

Observations (from experience) on the aid obtained in various diseases (particularly those incidental to Tropical Climates), by the external application of the Nitro-muriatic Acid in a Bath; with several Cases, &c. By Phineas Coyne, Member of the Royal College of Surgeons, &c. 8vo. London, 1822.

Arranged Catalogues of the Articles of Food, Seasoning, and Drinks, for the use of Lectures on Therapeutics with Materia Medica. By George Pearson, M. D. F. R. S., &c. Fourth Edition. 8vo. London, 1821.

History of a severe case of Neuralgia, commonly called *Tic Douloureux*, occupying the nerves of the right thigh, leg and foot, successfully treated. By G. D. Yeats, M. D. F. R. S., &c. 8vo. London, 1822.

The Medico-Chirurgical Review, and Journal of Medical Science (Quarterly) conducted by Associated Physicians and Surgeons, and Superintended by James Johnson, M. D. Licentiate of the Royal College of Physicians, London. 8vo. London. No. 9, June 1822; No. 10, September 1822.

The American Dispensatory; containing the Natural, Chemical, Pharmaceutical, and Medical History of the different Substances employed in Medicine: Together with the Operations of Pharmacy, illustrated and explained according to the principles of modern Chemistry; with Toxicological and other Tables, the Prescriptions for Patent Medicines, and various miscellaneous Preparations. *Fifth Edition.* By John Redman Coxe, M.D. Professor of Materia Medica in the University of Pensylvania, &c. 8vo. Philadelphia, 1822.

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Commentarius de Phlegmatia alba dolente. Auctore Joanne L. Casper, Med. et Chir. Doctore. 8vo. Halæ, 1819.

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Charakteristik der Französischen Medicin mit vergleichenden Hinblicken auf die Englische. Von Joh. Lud. Casper. D. M. & C. 8vo. Leipzig, 1822.

Beiträge zur Vervollkommnung der Heilkunde Von Carl. H. Dzondi, D. M. & P. &c. 8vo. Halle, 1816.

Aeskulap; eine Zeitschrift der Vervollkommnung der Heilkunde, in allen ihren Zweigen, herausgegeben von K. H. Dzondi, Professor. Erster Band. Erster und Zweiter Heft. 8vo. Leipzig, 1821-22.

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1. JANUARY, 1822.

PART I.

ORIGINAL COMMUNICATIONS.

I.

OUTLINE OF AN INQUIRY ON THE PATHOLOGY OF CONSUMPTIVE DISEASES.

By JOHN ABERCROMBIE, M. D.

PART II.

FROM the facts which were stated in the former part of this Inquiry, it appears that cough, purulent expectoration, hectic fever and wasting, do not necessarily constitute the true consumption of the lungs. On the contrary, there is every reason to believe that all these symptoms may proceed from various other morbid affections; some of them as untractable as the true consumption, but others affording a much more favourable prognosis; and that all of them may be fatal with the usual symptoms of consumption, and yet the substance of the lungs be found entirely free from disease. Farther, it is in the highest degree probable that suppuration may take place in the substance of the lungs themselves; that the matter may be spit up, and the abscess heal as favourably as a healthy abscess in any other part of the body. This favourable termination does not, indeed, take place in every case of this kind; for the disease may be so extensive, and the strength of the patient so reduced, that he may sink under the most healthy suppuration of so important an organ; but, in the history of this affection, we see enough to fix a marked and decided distinction betwixt it and that unhealthy ulceration which constitutes consumption.

This important difference is often referred to the scrofulous habit: but it does not appear that the existence of a scrofulous taint necessarily gives to ulceration an unhealthy character. This important principle may be inferred from a variety of remarkable facts. A scrofulous gland may be extirpated, and the wound heal favourably; whereas, had it been allowed to advance to suppuration, the ulcer would have been most unhealthy. After the amputation of a scrofulous limb, the stump may heal as favourably as in the soundest constitution: and even in the same person, at the same time, we may observe scrofulous ulceration existing in one part of the body, and, in another part, the most healthy suppuration. Blisters and issues in a scrofulous habit do not necesarily produce scrofulous sores; but, on the contrary, we often find difficulty in procuring from them that discharge which we wish to produce. I had lately under my care a gentleman who was affected with a disease of the knee, accompanied by a running sore decidedly of a scrofulous character. While this was going on, without any appearance of amendment, he sustained a considerable injury of his hand, by a contused and lacerated wound. In such a constitution I greatly dreaded the result; but the wound healed as favourably as possible, leaving the disease of the knee entirely unchanged.

In the cases now referred to, therefore, it is probable that the unhealthy ulceration did not depend upon constitution simply, but upon certain changes which had taken place in the structure of the affected parts themselves; and these changes seem to admit of considerable and important varieties in degree in different cases, and in the same case at different times. These varieties we observe most remarkably in the lymphatic glands, when they become enlarged, in connexion with an unfavourable taint in the constitution. They may be simply enlarged, with their internal structure soft, fleshy, and highly organized; in the next degree, we find them more indurated, and less organized; then succeeds a firm whitish substance, which seems to possess much less organization; and then the white cheesy matter, well known in connexion with scrofulous ulceration of the most untractable kind. With these varieties appear to be connected important differences in the progress of these affections. In the first degree, it is probable that the enlargement of the glands may frequently increase and diminish, and often disappear. In another form, they become permanently enlarged. All the varieties may advance to suppuration; but with important diversities in the progress and the character of it. The more organized probably advance more rapidly, and suppurate more favourably; the less organized advance more slowly, and leave more untractable sores.

The ulceration of the substance of the lungs which constitutes true consumption, seems to derive its peculiarly unhealthy character from certain morbid changes which had previously taken place in the affected parts; and, in tracing these changes, we observe varieties considerably analogous to the diversities now referred to in the diseases of lymphatic glands. Whether these are distinct affections, or different stages of the same disease, it is perhaps impossible to ascertain; but the facts are worthy of minute observation, and appear to bear an important relation to the pathology of consumption.

When we investigate minutely these morbid conditions, they seem to be referable to the following heads.

I. *The White Tubercle.*—This substance is usually found in round nodules, varying in size from that of a large pin-head to the size of a walnut. They are usually in clusters of various extent, and, when examined individually, they appear to be in some cases enclosed in distinct sacs; in others, to lie more loosely in the cellular texture of the lungs. They are, in some cases, very few in number, perhaps only one or two, imbedded in sound pulmonary substance; in other cases, a great extent of the lungs seems to consist entirely of a continued series of them so closely impacted together, that the proper pulmonary structure has entirely disappeared. In their internal structure, they present a whitish or ash colour, and various degrees of consistency. In some cases they cut smooth and firm like soft cartilage, or the substance of scirrhus; in others, they present a firm cheesy substance; in others, a soft cheesy matter; and, at last, we find them in a pulpy state, or presenting the appearance of a partial and unhealthy suppuration. When cut across in their firm state, minute openings may sometimes be observed in them; but these do not appear to be blood-vessels, for they have not been found to admit any injection from the arteries of the lungs. The white tubercles seem to possess a very slight degree of organization, and to pass very slowly into the state of suppuration. This change seems, in general, to commence in the centre, and to advance very slowly through the substance of them. In the end they are often entirely softened or suppurated, and the matter finds an outlet by a branch of the bronchiæ. In some cases, it is probable that the communication with the bronchiæ takes place while the process of suppuration has but partially advanced, and that the purulent matter is spit up gradually as it is produced; but in others, there is reason to believe that the whole contents of a tubercle are brought up in masses partially suppurated, so as to empty the sac in a very short time. When, in either way, the sac has been emptied, it is probable that in some cases an ulcerative process continues in it, and that the formation of matter goes on; in others, there is reason to believe that the sac may then pass into a healthy state, forming a small cavity communicating with the bronchial canals, but without any morbid action. This most important point will be more particularly referred to in the sequel.—The appearances now referred to can only be observed when the tubercles are few in number—are enclosed in proper sacs—and are surrounded by pulmonary substance in a tolerably healthy state. The cases which we more commonly meet with present such a mass of unhealthy ulceration, as bids defiance to every attempt at minute observation.

II. *The Semitransparent Tubercle.*—This variety presents the appearance of numerous small bodies, seldom exceeding the size of a grain of wheat, of a semipellucid appearance, and firm consistence like soft cartilage. They are comparatively of rare occurrence, and they have not been sufficiently investigated. There is some reason to believe that, at a certain period of their progress, they become opaque.

III. *The Fleshy Tubercle.*—These also have been little investigated; but they appear to constitute either a form or a period of the disease quite distinct from the two former. They present the appearance of numerous bodies, like peas; soft and fleshy in their structure; exhibiting, when cut across, a reddish colour, and a consistence resembling the substance of the kidney, or the mesenteric glands in their state of simple enlargement. This variety of tubercles, I think, has been little attended to, and they are certainly of rare occurrence. I have observed them chiefly in the lungs of children, and am quite satisfied of their existence.

IV. *The Black Degeneration of the Lungs—the Melanosis of the French writers.*—This sometimes appears in nodules like tubercles; and sometimes an irregular portion of the lung, of considerable extent, is affected with it. It is very firm; of a uniform black colour; in some cases it has been compared to the consistence of half-burnt leather.

V. *The Simple Hepatised Induration of the Lung.*—This may exist in a great extent, without the slightest appearance of tubercles. It presents a uniform solid mass, of a reddish colour, and varying a little in its texture, being in some cases granular, like the substance of the liver; in others more fleshy, like kidney. The natural cellular texture of the lung has entirely disappeared. It varies much in extent, being in some cases in small irregular masses, in others affecting a great extent of the lung.

The various morbid structures now referred to are sometimes found quite unconnected with each other; tubercular masses, for example, surrounded by the pulmonary substance in a healthy state, or the hepatised induration of the pulmonary substance, without any appearance of tubercle. But in general we find them more or less combined. When the diseased lung in these cases is cut across, it presents a variegated surface, white, red and black, in which the various morbid conditions are blended irregularly, as the firm white tubercle, blended with small flesh-coloured nodules at one place, and with black portions at another; or the hepatised induration, with white or black tubercles interspersed through it; in some cases a portion of pulmonary substance, tolerably healthy, may occasionally intervene; in others, there is an extensive mass uniformly indurated, but presenting, when cut into, this variegated structure—in some places solid—in others interspersed with small abscesses; and, in the advanced stages, we find extensive cavities of ragged unhealthy ulceration, with only an outer shell remaining of the indurated substance.

The morbid condition which is thus formed is in some cases confined to small portions of the lungs; but in others is much more extensive, affecting perhaps the whole of one lung, and sometimes nearly the whole of both. The indurated part appears to be quite unfit for the function of respiration; and, when it is minutely examined, it is generally found that the blood-vessels of it are very much diminished in size, often obliterated; and this appears to be occasioned by the deposition of a firm substance which fills up their cavities. Dr Stark found that a vessel which, at its origin, was as large as half an inch in circumference, frequently could not be traced above an inch, being then obliterated; and in a case by Portal, in which he was desirous of injecting an indurated lung, he could not find, in any part of it, a vessel large enough to admit his smallest injecting tube. In some cases, again, while the branches have been thus diminished or obliterated, the trunk of the pulmonary artery has been found dilated like an aneurism. The air vessels become contracted and obliterated in the same manner as the blood-vessels.

A portion of lung which is thus indurated becomes, of course, unfit for the purposes of respiration; but it may remain long, perhaps in some cases through life, in a dormant state, that is, without passing into any farther state of disease. If it be of small extent, it may produce little or no uneasiness; but if the extent of it be considerable, it must impede the circulation through the lungs, as it is nearly impervious to the blood from the pulmonary artery. Hence it is likely to produce dyspnœa, and, in the end, give rise to hydrothorax. But a mass of this kind is very prone to farther disease—to a low inflammatory action of a peculiarly unfavourable kind—and to a peculiarly unhealthy ulceration as the result of it:—and there are some points deserving minute investigation in regard to the effects of inflammation on the various structures of which the mass is generally composed. It seems doubtful whether the proper white tubercle be susceptible of inflammatory action. It appears to undergo a change peculiar to itself, by which its contents are gradually softened, until they at last degenerate into an ill-conditioned pus. Though the tubercle itself, however, be insusceptible of inflammation, it is probable that this process is accelerated by inflammation affecting the surrounding parts; but, in general, the tubercle seems to pass very slowly into the state of ulceration, and the ulceration to extend very slowly over the neighbouring parts. Hence the symptoms in such cases are not acute, and their progress is very slow; and, even after the disease has been of considerable standing, we may find, on dissection, but a few small vomicæ amid the mass of tubercular disease. The hepatised induration, on the other hand, appears to be highly susceptible of inflammatory action, and, under the influence of it, seems to run rapidly into extensive ulceration of a peculiarly unhealthy kind, presenting appearances remarkably different from the tubercular ulceration, and forming a modification of the disease remarkably different from the pure tubercular consumption. The symptoms are more severe at their commencement, and their progress much more rapid, the case perhaps being fatal in three or four weeks; and we find, on dissection, a dark-coloured induration of the lung, with a large cavity lined by ragged ulceration, as if a large portion had been forcibly torn out. This most important modification of the disease will be more particularly referred to in the sequel.

This induration of the substance of the lungs appears to form the basis of the pathology of consumption. Researches calculated to illustrate the subject must be directed to the nature and origin of the induration—the nature of the various structures which enter into the composition of it—the peculiar changes which they undergo—the varieties which occur in the disease, according as one or other of these structures may predominate in the mass, and as one or other of them may be the primary seat of the morbid action in the ulcerative stage of the disease, or the stage which immediately precedes the ulceration. The inquiry is difficult, and most extensive; much patient investigation, and numerous and accurate observations will be required, before much light can be thrown upon it, and before we shall be ready for any general conclusions; but it promises the most important results in regard to the pathology of consumption.

In attempting a few observations on this important subject, I do not profess to offer any thing new or original. I aim only at such an outline as may include the most important facts in the pathology of the disease, and those points particularly which stand most in need of being investigated by extensive observation. In a practical view, these points may be referred to the following heads.

Sect. I.—*There is reason to believe that an Indurated Mass, of the kind which has been alluded to, may exist in the Lungs, and may remain dormant for a long time, perhaps through life, without producing any alarming symptoms.*

This seems to occur chiefly when the induration is not extensive, and is distinctly circumscribed, and when the remainder of the lung is in a tolerably healthy state. But, in some cases of this kind, the disease has been found very extensive. In a woman mentioned by Bayle, who died suddenly in the cold stage of an intermittent, after labouring under the disease for six weeks, there was found most extensive induration and tubercular disease of the lungs, though there had been no pulmonary symptom but slight dry cough for the last fortnight. In a young man, mentioned by the same writer, who died of typhus, there were numerous tubercles in the lungs, some of them as large as filberts, and around them the pulmonary substance was red and dense. In a man aged 80, who died of an affection of the brain, Morgagni found a mass of induration in the left lung, in which all the vessels of the lung appeared obstructed and dry: And in an old woman mentioned by Morton, who died, gradually exhausted by urinary complaints with which she had been affected for twenty years, there were found much disease of the kidneys and bladder, and extensive tubercular disease of the lungs. It is unnecessary to multiply examples of this kind, as they must have occurred to every one who is conversant with morbid anatomy.

A person in whom such a mass of disease exists is in a precarious state, as there is both a great disposition to an extension of the disease, and a tendency to pass into ulceration of an unhealthy character. The latter seems to be the result of inflammatory action of a low insidious kind; and to this the diseased mass, or the parts surrounding it, appear to be extremely liable, from slight causes. It is probable that it may commence either in the substance of the mass—in the pulmonary substance near it—in the pleura covering it—or in the bronchial membrane most nearly connected with it. Hence the first symptoms may assume the characters of slight peripneumonia, pleuritis, or catarrh; but in either case terminate by bringing the mass into a state of activity. The patient is extremely liable to be affected by cold; and upon every attack from such exposure, there is usually a fixed point to which he refers his uneasiness, or, according to a mode of expression frequently employed, "the slightest cold always seizes him in that spot." The symptoms usually are, pain in the part, more or less acute, and more or less affected by inspiration, cough, and frequently slight hæmoptysis; such attacks frequently subsiding under the appropriate treatment, and as often recurring upon the next exposure, until at length one of them terminates in that unhealthy ulceration which constitutes consumption. Much is to be done here by active, judicious treatment, and much by avoiding the exciting causes of these attacks; and it is in this state of the disease that removal to an equable climate, if adopted at the proper period, may be recommended as a remedy of real efficacy. In the cases now referred to, a part only of the morbid mass is the true tubercle, and it seems doubtful whether this be susceptible of active inflammation; but its peculiar change to a softened state of unhealthy suppuration appears to be accelerated by inflammatory action affecting the parts surrounding it. It may, however, undergo this change gradually and insidiously, without any inflammatory symptoms, giving rise to a form of the disease the most untractable, the least under the influence of any remedy, and generally hopeless.

SECT. II.—*On the other hand, the Induration may be so extensive as to prove fatal, without advancing to Ulceration.*

The symptoms in these cases usually are, frequent harassing cough, without expectoration, or with scanty mucous expectoration from the bronchial membrane, short uneasy breathing, frequent pulse, in some cases distinct hectic paroxysms, diarrhœa, and death by gradual wasting. The bowels frequently become affected at an early period, and the ulceration of the mucous membrane of them seems in some of these examples to be the immediate cause of the rapid exhaustion and death. A man mentioned by Broussais had dry cough, with frequent pulse, and slight uneasiness in breathing, which affected him chiefly when he walked. After some time he had diarrhœa, with rapid wasting and œdema of the legs, and died after an illness of five months and a half. Both lungs were full of tubercles without any suppuration; and the right was, besides, extensively hepatised. There were small round black ulcers in the colon, and the mucous membrane near them was inflamed and thickened. Another man, mentioned by the same writer, died with nearly the same symptoms, after an illness of six months. The right lung was found extensively hepatised, and full of innumerable tubercles, some of which were very large, and contained a white matter in the centre. The left lung was less hepatised, but equally full of tubercles as the right; there was no ulceration in either. There was tubercular disease also in the liver and in the spleen. The mucous membrane of the colon was inflamed and ulcerated. A man mentioned by Bayle had obstinate dry cough, hectic fever, and night sweats; then mucous expectoration of an opaque white, anasarca, and colliquative diarrhœa, and died completely emaciated about a year from the commencement of the cough. There was no ulceration of the lungs, but extensive induration, with numerous small tubercles; there was ulceration of the mucous membrane of the cæcum.

This tendency to ulceration of mucous membranes is a remarkable feature in all the forms of consumptive diseases; and in many cases it appears to be the fatal disease, while the original affection is stationary, or has not made much progress. It is observed in the mouth, the nose, the œsophagus, the stomach, the bowels, and in the trachæa; and I think I have observed it in the urinary bladder. The most common seat of it is the cæcum, or the lower end of the ileum; but it is met with through the whole intestinal canal, producing diarrhœa of a most untractable kind, which reduces the strength very rapidly. It is not confined to cases of true consumption, but may exist in connexion with most of the affections formerly referred to. A girl mentioned by Bayle had short dry cough for six months, then diarrhœa and great emaciation, and, after six months more, died with symptoms of acute inflammation of the lungs. On dissection, the lungs exhibited only the usual appearances of recent inflammation, but were otherwise healthy; the glands at the root of the lungs were enlarged, but not suppurated; and there was ulceration of the mucous membrane of the intestine. In a remarkable case by Prost, there was ulceration of the ileum, combined with ulceration of the larynx, fatal in a month, without any disease of the lungs.

This modification of the disease however may be fatal, without the affection of the bowels, as in a case by Bayle, which was fatal in three weeks, with dry cough and difficult breathing—the patient dying suddenly in a fit of suffocation. The only morbid appearance was most extensive tubercular disease of the lungs, of that kind which he calls the granular species, without any suppuration. A man mentioned by Broussais had severe cough, with pain under the ensiform cartilage, and in the left side of the thorax, frequent small pulse and rapid wasting, without either perspirations, diarrhœa, or expectoration, except that he began to expectorate a little puriform matter in the last six or seven days of his life. He died in the last degree of emaciation, after several months. The right lung was almost entirely indurated, and full of solid tubercles, some hard, others a little softened. Three-fourths of the left lung was entirely composed of tubercles, many of them as large as eggs, some of them of scirrhous hardness, others fatty, and others full of cheesy matter, dry and brittle; a few of the smaller ones had a soft pulpy matter in the centre, but these were very few. The remainder of this lung was hardened and red. This form of the disease, therefore, may be fatal without any expectoration, or with very slight mucous expectoration, forced out from the bronchiæ by the mere irritation of coughing; or it may be complicated with some of the other morbid affections formerly referred to, which may occasion a variety in the symptoms. If it be combined with disease of the bronchial membrane, there may be copious expectoration of a puriform character, giving to the case the appearance of the ordinary ulcerative phthisis, though the lungs are found, on dissection, entirely free from ulceration. A man mentioned by Bayle died after a year's illness, having had cough with expectoration which was mucous, in part purulent, and often bloody; he had afterwards fever, night sweats and diarrhœa, and died in a state of extreme emaciation, the expectoration having been at last purulent and very copious. The inferior lobe of the left lung was healthy; the remainder of it had entirely degenerated into a substance fleshy, reddish, and crowded with tubercles, which were white and opaque. They were so numerous that very little space was left for the intermediate fleshy substance. The right lung was in the same state. There was ulceration of the mucous membrane of the cæcum and colon. It is also found in combination with chronic inflammation of the pleura. In a case of this kind by Broussais, there was severe dry cough with pain of the left side —attacks of dyspnœa—febrile paroxysms—œdema—rapid emaciation—at last orthopnœa, and death in three or four months. There was much bloody fluid in the left cavity of the pleura; the left lung was much diminished in size; the upper part of it was almost entirely transformed into dry tubercles; the lower part presented a flabby induration without tubercles; the pleura was red and thickened. The right lung filled the cavity, and adhered throughout; was much hardened and full of tubercles, but without any suppuration. When a lung in this state is attacked by active inflammation, it forms a case of peculiar violence and rapidity, resisting every remedy, and proving fatal, by suffocation, in a very short time.

Sect. III.—*At a period of its progress more advanced than the preceding, this extensive Induration may prove fatal with portions of it in a state of suppuration, yet without purulent expectoration, the purulent matter not having yet found its way into the bronchial canals.*

In the following case a disease of this kind was unusually rapid in its progress, and the morbid mass of remarkable extent.

Case I.—A young lady, aged 13, had been very healthy till the beginning of June 1819, when she began to be inactive, with loss of appetite; and there was observed, occasionally, a dark purplish flush of her cheeks; her pulse was a little frequent; but she would not allow that she was ill. About the 22d of June, she was first observed to cough, but very slightly; and, for the first time, complained of languor and weakness. On the 24th, there was slight pain of the chest upon taking a full inspiration, but it attracted little attention. On the 25th, she went to the country, where she continued till the 6th of July. On her return, it was found that the cough was rather increased, but the pain was inconsiderable. Her breathing, however, became quick and short, the pulse frequent, with increase of frequency towards evening, and considerable decline of strength. On the 9th, the uneasiness in breathing had increased so much, that a small bleeding was employed (about ℥ vij.) with considerable relief. After it, she could take a breath without pain; in other respects as before. On the 14th, I saw her for the first time. The pulse was then 130; countenance anxious, with a purple flush; breathing quick and short, about 50 in a minute; and pain was complained of on attempting to take a full breath. Was bled to ℥v. with much relief; the pain was removed, and the breathing became less frequent. The cough continued, frequent and short, without expectoration; the pulse 120. From this time the weakness and emaciation increased rapidly, with frequent dry cough, rapid pulse, and occasional quickness of breathing, and without any other change in the symptoms, she died on the 5th of August, all the usual remedies having been employed without benefit. There was, to the very last, no expectoration, except very small quantities of light white mucus, scarcely to be distinguished from mere saliva. *Dissection.*—The lungs did not collapse on opening the thorax. Both lobes, through nearly their whole extent, presented such a mass of disease, that it was difficult to find the smallest portion which exhibited the natural structure. They were uniformly firm and unyielding, like a mass of liver, but harder; and, when cut into, were hard and solid, and of various colours, chiefly a mixture of white, and dark red or brown. The white portions had the appearance and consistence of firm cheese, and lay in irregular masses, of various shapes and various extent, with the firm dark portions interspersed betwixt them. The white portions seemed to predominate in the left lung, and were rather less extensive in the right, though in its structure it was equally dense as the left. In the posterior part of both lungs, there were several small abscesses, two or three of them the size of Spanish nuts; they were full of a thick puriform matter. In the inferior part of the left lung, there was a small portion, about two inches in depth, and extending along a part of the thin edge of the lung, which appeared to be the only part that retained the cellular structure, or had been capable of admitting air. Even in this part, however, there were several small abscesses. The other viscera were healthy.

The amazing extent of disease in this remarkable case—the previous health of the patient—and the rapidity with which it ran its course without expectoration, present points of extreme interest in the pathology of this affection. How little can we rely on symptoms, in cases of this kind, when we recollect that, in this young lady, the only permanent symptoms were short dry cough, frequent pulse and emaciation; and that, at an advanced period, she appeared to take a full inspiration without uneasiness, when the portion of lung that was capable of admitting air could not have exceeded a few inches in extent! It is unnecessary to multiply cases of the same kind that are on record. One which excited much attention in France, was that of the Dauphiness, mother of Louis XVI. She was seized with a dry cough, followed, soon after, by slight fever. She wasted; the menses were suppressed; and she fell into a true atrophia, without experiencing either pain in the breast, or any remarkable expectoration, or the least uneasiness in breathing in any posture of the body. In this manner she died, in a state of complete marasmus, after three months illness, much difference of opinion having existed in regard to the nature and seat of her disease. On dissection, there was found extensive induration of both lungs, especially the right, with numerous abscesses.[*]

SECT. IV.—*When the Diseased Mass is of limited extent, and the remainder of the Lungs in a tolerably healthy state, the case may go on in a much more gradual manner, and with considerable varieties in the symptoms, and in the rapidity with which they advance.*

When the mass is of the pure tubercular kind, of limited extent, and surrounded by healthy parts, the symptoms may go on very slowly and insidiously, and with very little interruption of the functions of the lungs. The two following cases are valuable, from the circumstance of both being fatal by incidental occurrences, while the symptoms were still going on in this slow and obscure form.

CASE II.—An ingenious artist, aged about 30, of a family which had suffered severely from phthisis, had been, for several years, extremely liable to cough, and had frequently expectoration of a purulent appearance; so that he had been long considered as in a very precarious state, and in great danger of consumption. In the beginning of summer 1819, his symptoms continued nearly as they had been for a considerable time; he had cough, and a good deal of expectoration, but his breathing was natural; he could take a full breath without the slightest uneasiness; and, though somewhat reduced in strength, was able to attend to his business. In the beginning of June, being one day much agitated in discussing some business in which he thought himself ill used, he suddenly complained of his head, and his speech became inarticulate. It was on account of this attack that he came under my care, for he had not considered his pectoral complaints as requiring medical assistance. The headach increased, and was referred chiefly to the left side and the back of the head, and the upper part of the neck; the speech continued very indistinct; the pulse from 90 to 96. The usual remedies were actively employed, without relief; he sunk gradually into coma, and died with the usual symptoms of hydrocephalus, in rather more than a fortnight. From the first appearance of these symptoms, the pectoral complaints greatly subsided, and, after the first two or three days, entirely disappeared. *Dissection.*—There was extensive effusion in the ventricles of the brain; and the central parts, the fornix, septum lucidum, and a part of the corpus callosum, were broken down into a soft pulpy mass. This appearance also extended into the substance of the brain, where it formed the lateral ventricles. In the upper part of each lung, there was a tubercular mass the size of a small orange, externally very hard, but internally extensively ulcerated. The remainder of the lungs was quite healthy.

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[*] Portal Anatomie, Med. Tom. V.

CASE III.—A gentleman, aged 36, had been, for great part of his life, liable to what was called an "habitual cough," but enjoyed good health until the spring of 1819, when he was partially confined to the house with feverish and catarrhal symptoms; got better by a little confinement; went out (as was supposed) too soon, and "his cold was renewed;" and this happened several times. After being for some time in this state, he began to have paroxysms of fever, which attacked him daily about three o'clock *p. m.* with all the violence and all the regularity of an intermittent; and the complaint was treated as intermittent by several eminent medical men who had the care of him at that time. He first took bark, and afterwards arsenic; and the attacks subsided gradually, after three or four weeks. During this time he had cough, but so very slight, that it was considered as his "old habitual cough," and not at all connected with his present complaint. In the intervals of the attacks, his pulse was quite natural; but his appetite was bad, and his strength much reduced. After several weeks, these attacks of fever disappeared entirely; he then removed to another part of the country, and improved considerably, but did not get well. His chief complaints were now bad digestion and pain in the right side; the disease was considered by another eminent medical man as an affection of the liver, and a gentle course of mercury was recommended, under which his digestion improved considerably. The same cough still continued, but still so very slight, that it was not considered as a symptom of any importance. In this manner he passed the summer. About the beginning of September, he was affected with huskiness of voice, and some uneasiness about the throat; and another medical man suspected an affection of the larynx. Finally, he came to Edinburgh in the end of September. He was then considerably reduced in flesh and strength; his pulse usually varied from 80 to 90, and was sometimes quite natural. He had very slight cough, which scarcely affected him except in the morning, when he expectorated a good deal of matter, which was partly viscid, and of a clear gelatinous appearance, but with a mixture of an opaque friable matter of a puriform character. About this time, also, it was several times slightly tinged with blood. During the day, he frequently did not cough at all; he took a full breath with ease. His nights were rather disturbed, but without any thing like hectic; and, when closely questioned, he admitted that he felt occasionally transient pain in the chest. His debility and emaciation now showed some fixed and extensive disease; and the appearance of the expectoration distinctly referred it to the lungs. With the other usual remedies, immediate change of climate was recommended; and he was advised, in the mean time, to expose himself as little as possible, the weather, by the time he left Edinburgh, in the middle of October, having become extremely cold. The former part of this advice he determined on following, but neglected the latter. He had removed to the west coast, and was ready to embark, when, after a long ride on horseback in a cold day, he was seized with profuse hæmoptysis. After the first attack, the hæmorrhage subsided for two days, and then returned in the night with such violence, that it was fatal in a few minutes. *Dissection.*—Every part of the lungs was in a healthy state, except a well-defined portion at the very lowest and posterior part of the right lobe, occupying the angle formed by the diaphragm with the ribs and the mediastinum. This portion adhered to the ribs; externally, it was hard and very firm; internally, it contained an abscess full of purulent matter. This abscess communicated by a very small opening with a more irregular ulcerated space; and this communicated with the bronchiæ about three inches from the bifurcation. This ulcerated space appeared to have been the source of the hæmorrhage; its internal surface was very irregular; and on several parts of it there were discovered open mouths of blood-vessels. The bronchial tubes over the whole of the lungs were in a great measure filled by coagulated blood. The heart was nearly without blood. The other viscera were sound.

These two cases, particularly the latter, I think extremely valuable, as illustrating the obscurity with which the symptoms may advance when the diseased mass is of limited extent, and is surrounded by pulmonary substance in a healthy state. This obscurity, it is probable, will be greatest when the mass is of the pure tubercular kind, in which the changes advance with little or no active inflammation; and when it is so situated, as not to be much affected by the inflation of the other parts of the lungs. Perhaps some effect may also arise from the mass being so surrounded with induration, as to be completely cut off from inflation itself. In such a case, I think we can easily conceive how considerable disease may go on and advance to ulceration with little cough, and little or no pain or uneasiness in breathing.

Sect. V.—*Whatever importance may be attached to the explanation proposed in the preceding Section, it is an important fact in the history of the disease, that under various conditions of the parts, the affection may go on to a very advanced period with very slight and obscure symptoms, and sometimes with scarcely any symptoms indicating pectoral disease.*

These cases are generally characterised by gradual wasting, with quick pulse, and obscure hectic symptoms, and may go on in this manner, without the real nature of the disease being ascertained, until purulent expectoration appears a short time before death. Febrile paroxysms, occurring with the regularity of an intermittent, have been the prominent symptoms in some of them, and have gone on for a very considerable time, giving rise to various conjectures in regard to the causes of the paroxysms, until pectoral symptoms appeared at an advanced period. Several cases of this kind have come under my observation. Others have assumed the appearance of disease of the liver. A gentleman mentioned by Portal had loss of appetite, and wasting, without any obvious cause. He had then some degree of yellowness; and, on examination, a tumour was felt in the region of the liver. There was no cough, and no uneasiness in breathing; and the disease was treated as an affection of the liver by Portal and another physician. But the disease increased, with febrile paroxysms and colliquative diarrhœa; and was fatal by gradual wasting, with some uneasiness in breathing, but without the least cough or expectoration. On dissection, the liver was found perfectly sound; the disease was entirely in the lungs, especially the right lobe, which was full of indurations and abscesses; and its substance was so much enlarged that it pressed the diaphragm downwards, and made the liver project considerably from its natural situation. * In a case by Bayle, there was gradual wasting, with loss of appetite, for six months; then cough, with some expectoration and diarrhœa; but, after six or seven weeks the cough ceased entirely, the diarrhœa then continued without any other symptom, and in five or six weeks more was fatal, with extreme emaciation. On dissection, the lungs were found most extensively indurated and impervious to air, with many tubercles and abscesses. About a fourth part of each lobe at the lower part seemed healthy. There were ulceration of the mucous membrane of the ileum at the lower end, and extensive disease of the mesenteric glands. † Another modification of the symptoms occurs in a case by Portal. A stout young man, aged 29, after exposure to great heat and fatigue in hunting, complained of heat over his whole body, and red spots came out on his skin. After some time he had extreme lassitude, and febrile paroxysms, with night sweats; but when he was brought to Paris, at an advanced period of the disease, he had no cough, or scarcely any, and no uneasiness in his breast; he had slight

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* Portal sur la Phthisie Pulmonaire. Tome II. p. 258.

† Bayle, p. 369.

hoarseness, and his pulse was extremely rapid. Diarrhœa then came on, and he died in a state of extreme emaciation in less than two months from the first attack, having expectorated a little purulent matter in the three or four last days of his life. On dissection, the right lung was found full of a substance like that which is found in wens, partly firm and white, and partly soft and yellow; there were also several abscesses, which did not appear to communicate with the bronchiæ; the left lung was a mass of suppuration at the lower part, where a considerable part was destroyed; the upper part was full of hard concretions, not suppurated. Many other cases of the same kind are on record. In a girl mentioned by Nonnius, there were extensive suppuration, and extensive destruction of the substance of the lungs, though there had been neither cough nor expectoration. The only symptom had been febrile paroxysms, which assumed the characters of quartan intermittent. In a case by Massa, there was a large ulcer, hollow and putrid, in the left lobe of the lungs; the patient having died of gradual wasting, without any cough, or the least complaint of pain. In some other cases, again, the first symptom that excited alarm has been copious hæmorrhage from the lungs; and the patient being rapidly cut off in this manner, it has been found that extensive disease had been going on previously.

The following case is the most remarkable example that has occurred to me of the subject referred to in this Section—extensive disease of the lungs, with slight and obscure symptoms.

Case IV.—A young woman, aged 25, had an attack of pneumonia in April 1815, which, having been neglected in the beginning, was severe and untractable; and, for several weeks after the urgent symptoms were subdued, cough continued, with short anxious breathing. By care and quietness, however, these symptoms soon disappeared; and, though she continued weak, she had no symptom, except that her breathing was easily hurried by any exertion. During the summer she continued nearly stationary, but in the following winter she improved considerably in strength; her breathing was still easily hurried by exertions, and her pulse commonly about 100; but there was no symptom that indicated any serious disease of the lungs. In spring 1816 there was an increase of debility, with failure of appetite, and small frequent pulse, and an acute pain, which was referred to the spine about the middle of the dorsal vertebræ, a little to the right side; but it did not affect her breathing. In the beginning of May she was considerably better, and able to walk out. One day she walked about a mile, and felt the better for it. On Saturday, 11th May, at night, she was suddenly seized with oppression of breathing, without pain. On Sunday was better; but became worse in the night, with small frequent pulse and rapid failure of strength, and died on Monday morning. *Dissection.*—The right lung was much wasted in its substance, extensively indurated, and full of abscesses; and in the cavity of the pleura there was a large collection of purulent matter. The left lung was diseased in the same manner, but in a smaller degree. In the cavity of the posterior mediastinum, there was a large collection of pus, of a scrofulous character, mixed with a great quantity of a soft pultaceous substance of a yellowish colour. The matter was in contact with the spine; and five or six of the dorsal vertebræ were extensively carious and so eroded, that large pieces of the bodies of them could be easily broken off with the fingers.

SECT. VI.—*The most interesting question connected with this Inquiry is, Whether, after a mass of tubercular disease has become ulcerated, the Ulcer may heal? In other words, Whether the true Consumption of the Lungs may be cured?*

The following case is the only one which has occurred to me that bears directly upon this important point.

CASE V.—A lady, of a family which had suffered from consumption, was seized about the age of 18 with cough, pain of the left side, and other symptoms, which were considered as indicating the commencement of phthisis. An elder sister, whose complaints began in the same manner, had recently died of consumption in the ordinary form; and the symptoms were such as led to the opinion, that this lady was consumptive also. After continuing, however, for a considerable time in a very precarious state, she gradually recovered, and enjoyed good health till the age of 48, when she suffered an apoplectic attack, which left her affected with hemiplegia of the right side. It was on account of this affection that she came under my care in 1817; the hemiplegia being then of several months standing. She made very little improvement, but continued in a helpless state of palsy until August 1819, when she died suddenly in the night, having been seized with severe dyspnœa about two hours before her death. *Dissection.*—There were several ounces of fluid in the ventricles of the brain, and an extensive apoplectic cyst in the substance of the left hemisphere, which however was quite empty. It was lined by a firm yellow membrane; and the opposite sides of it, though in contact, were quite unconnected, except at a few points where slender bands of the same substance with the lining membrane passed from the one to the other. There was considerable effusion in the thorax, and the bronchial tubes were much loaded with thin frothy mucus. On the lower and outer part of the left lung there was a remarkable depression, as if a portion beneath had been destroyed; and the superficial parts, in consequence, had sunk inwards. This was found to be connected with a mass of tubercular disease, consisting chiefly of the white or ash-coloured tubercle in irregular masses, with some friable matter of a calcareous appearance interspersed through it. The whole was very hard, and without any cavity.

The appearances in this case were such as seemed to favour the supposition, that the tubercular mass had been in a state of ulceration, and that the disease had stopped after a considerable portion of the mass had been destroyed. The case, I therefore think, is one of considerable importance; and presents a most interesting subject for farther observation, in which little has hitherto been done. The recovery of a patient, in whom there had been consumptive symptoms, with purulent expectoration, is by no means to be received as evidence on this subject, as these symptoms may arise from various other sources: it is only by an extensive examination of the bodies of those who, after recovering from consumptive complaints, have died of other diseases, that we can hope to arrive at any satisfactory information. In the present state of our knowledge, we have certainly some ground for believing that the disease may be arrested in its progress, after a tubercular mass has advanced to ulceration. Two distinct states of the disease are to be kept in mind in connexion with this Inquiry.

(1.) The one is, when the tubercular disease is in an extensive undefined mass. This is, perhaps, the most unfavourable case, and least likely to do well after it has advanced to ulceration. The mass in such cases generally consists of a variety of structures, possessing various degrees of organization; and the probability of the ulceration being arrested, will probably depend upon the degree of organization of the part in which it is seated;—being greatest when the part is more organized, and the disease consequently more allied to healthy ulceration; and less when the part is less organized, or the proper white tubercle. This is conjecture; but it is probable that, in Case V., an undefined mass of this kind had been in a state of ulceration; and the same probably occurred in a case mentioned by Laennec, Tom. I. p. 79.

(2.) The other state of tubercular disease is when the tubercles are in circumscribed nodules of small extent, enclosed in distinct sacs, and surrounded by pulmonary substance in a healthy state. In this case, it is probable that the tubercular matter may become softened and suppurated, and may be entirely discharged by expectoration, leaving the sac empty: that the sac may then continue in a state of unhealthy ulceration discharging matter; or that it may pass into a healthy state, presenting the appearance of a firm membranous cyst, with one or more bronchial tubes opening into it,—the symptoms ceasing with the entire discharge of the tubercular matter. Several of these cysts were found by Laennec in the lungs of a woman who had been supposed to be cured of consumption eighteen years before. He mentions another woman, aged 68, who had been for many years liable to cough, with expectoration and uneasiness in breathing; but without much interruption of her general health, until she died, after a few day's illness, of acute peripneumony. The lower part of both lungs presented the usual appearances of the fatal attack. In the upper part of the right lung there was a cavity capable of containing a large filbert; many bronchial tubes opened into it, and its inner surface presented the appearance of a smooth membrane of a gray colour, and a semicartilaginous structure. It was surrounded by pulmonary substance in a healthy state. In the upper part of the left lobe, there was a similar cavity, which contained a little serous fluid; and its inner surface presented an intermediate appearance betwixt the smooth cartilaginous structure of the other cyst, and the appearance of a mucous membrane. The pulmonary substance surrounding it was a little indurated. In a man, aged 30, who died of an affection of the brain, without any pulmonary symptoms, but whose previous history was not known, the same writer found, in the upper part of the right lung, a cavity the size of an egg, formed by a firm, smooth, semicartilaginous membrane, and many bronchial tubes opened into it. It was full of coagulated blood. The surrounding substance was crepitating and healthy; but in otherparts of the lungs there were small tubercles, in someof which the tubercular matter was becoming friable. In a case in which consumptive symptoms had continued till death, Laennec found a cavity of this kind, the inner surface of which was covered with purulent matter; and in another case he found an appearance as if such a cavity had been nearly obliterated, by adhesion of its sides. There was externally a depression or falling in of the substance of the lung, as if occasioned by a cavity beneath; but on cutting down, there was found an induration, and in the centre of it, a white semicartilaginous membrane, about half a line in thickness, which was continued horizontally for a certain space, and then divided into two layers, leaving betwixt them a small cavity full of yellow friable tubercular matter. There was tubercular disease under this part, and throughout the lung, in various places. This man died of an affection of the brain, after being for some time affected with cough which had excited no attention, and his previous history is not mentioned. In another old man he found, on the surface of the left lung, a depression as if the part were drawn inwards and corrugated. Beneath this, there was an appearance of ossification; and from this point there proceeded a band of white condensed cellular substance, an inch long, six lines broad, and three or four lines in thickness. Several bronchial tubes terminated at this place, and seemed to be obliterated. The part altogether was very white, and presented a remarkable contrast to the dark pulmonary substance which surrounded it. The same writer mentions a man aged 62, who had habitual cough for many years, but was otherwise in good health, till he died, after five days illness, of peripneumonia. In the superior part of the right lung, there was a fibro-cartilaginous mass of a conical shape, and the size of a walnut, which, when cut into, presented every appearance of a cicatrix. Many bronchial tubes passed towards it and became obliterated; one, of very considerable size, was traced half an inch into its substance, and presented the appearance of a solid cord. In the upper part of the left lung, there was a small cavity like those described in the former cases. It was lined by a smooth membrane, and contained some tubercular matter in a soft state. The surrounding substance was crepitating and healthy; other parts of the lungs were hepatised and inflamed.

Sect. VII.—*Of the Hepatised Induration, and its consequences.*

The preceding remarks refer chiefly to the proper tubercular disease of the lungs. Some of them may be considered as in a great measure conjectural, and much observation is certainly required to enable us to arrive at any certain conclusions. But, in the present state of our knowledge, there is reason to believe, that the induration of the substance of the lungs, which lays the foundation for consumption, varies considerably in its characters in different cases, and in some of them consists of a mixture of various structures, differing considerably in their nature, and in the morbid changes which they undergo, and thus giving rise to considerable varieties in the characters of the disease. In the minute investigation of these varieties, little has hitherto been done; but I think we are fully warranted in establishing a distinction betwixt the two structures which seem to form the extremes—the white tubercle, and the simple hepatisation.

The hepatised induration seems in some cases to be the result of active inflammation, in others to be formed silently and insidiously without any active symptoms. It probably arises from a gradual deposition of animal matter, which fills up entirely the cellular structure of the lung, and then, becoming organized, presents a solid mass, resembling the structure of the liver. It varies in density in different cases, and in different parts of the lung in the same case, and is also diversified by having in many cases tubercles imbedded in it.

A mass of this kind, if it be of limited extent, may continue long, perhaps through life, without passing into any farther state of disease, and without producing much uneasiness; and such masses accordingly are met with on dissection, in the lungs of persons who have died of other diseases. If it be of greater extent, so as to impede in any considerable degree the circulation through the lungs, it may give rise to dyspnœa, and may prove a cause of hydrothorax. But besides these effects of it, it is liable to pass into ulceration of a peculiarly unhealthy kind, constituting a case of a most dangerous and untractable nature, but differing remarkably from the ordinary tubercular consumption.

The indurated mass, in these cases, appears to differ from the tubercular induration, in being more organized, and consequently more susceptible of inflammatory action—in the inflammatory action being more of an acute kind, and running more rapidly into ulceration. It differs from pulmonary substance in a healthy state—in being affected by inflammatory action from slighter causes—in being more liable, when inflamed, to run into ulceration—and in the ulceration being of a peculiarly unhealthy kind. It usually presents the appearance of an irregular cavity, lined by loose ragged ulceration of the indurated substance itself, as if a piece had been forcibly torn out, while the abscess of the healthy substance is lined by a smooth uniform coating of coagulable lymph.

The inflammatory action, in these cases, may be more or less acute, and more or less extensive. The symptoms, therefore, may vary, both according to the activity and the extent of it, and according to the extent of the indurated mass in which it is seated; in some resembling an ordinary attack of pneumonia, in others being at first slight and obscure, more resembling the commencement of phthisis. In both cases, they usually advance rapidly; in the former, assuming the appearance of pneumonia of a peculiarly untractable character; in the other, constituting a modification of phthisis of a peculiarly rapid kind, remarkably different from the ordinary tubercular phthisis.

The morbid condition of the lungs, to which I refer in these observations, forms a subject of very great interest in the pathology of consumptive diseases. The following cases appear to illustrate some of the principal modifications of it; but much observation is required before we can arrive at any satisfactory conclusions.

CASE VI.—A gentleman, aged 39, who had long been liable to cough and difficult breathing, was seized, in October 1814, with the ordinary symptoms of pneumonia. He was bled three times; and the other usual means were employed, by which he was very much relieved. But, after the urgency of the attack was subdued, he continued to have considerable cough, and the expectoration became purulent; he had then dyspnœa and hectic fever, and died within three weeks from the pneumonic attack. *Dissection.*—Both lungs were extensively hepatised, and in many places beset with tubercles; but none of these were in a state of suppuration. In the substance of the right lung, there was a large cavity, containing ill-conditioned matter. The inner surface of the cavity presented an irregular surface of dark-coloured ragged ulceration, as if a piece had been forcibly torn out, without any lining membrane; and the pulmonary substance around was dark-coloured, and much indurated.

This case I consider as illustrating the effect of active inflammation on lungs previously indurated. I add the following as a contrast to it; being an example of the abscess from active inflammation in lungs previously sound, at nearly the same period from the attack.

CASE VII.—In September 1814, I saw a woman, aged about 30, who was affected with cough and thick puriform expectoration; her breathing was rather quick, and a little oppressed, but without pain; her voice was tremulous and weak, and her pulse frequent. But she was out of bed, and able to walk about, and that day had walked from a distant part of the town, where she had been a servant, to the house of her father, where I saw her. I learnt that she had had a pneumonic attack about a fortnight before, for which she had been bled with relief, but had continued to be affected with cough, thick expectoration, and some uneasiness in breathing; and the latter symptom had increased considerably for the last two days. On the day on which I saw her, she continued to walk about the house, and even into the houses of some of the neighbours; went to bed apparently somewhat relieved, and died suddenly in the night. *Dissection.*—The left cavity of the pleura contained about lbiij. of a fluid which appeared to be a mixture of pus, with the serous effusion usually found in the pleura. The left lung adhered considerably to the surrounding parts; and in the substance of it there were two large abscesses, both of which had burst into the cavity of the pleura. They were both lined by a layer of coagulable lymph, forming a firm, smooth, uniform lining, of a light yellow colour. The substance of the lungs surrounding the abscesses was considerably loaded with thin mucus, but was quite soft; and when the mucus was pressed out, it appeared quite healthy. There was a small quantity of fluid in the right cavity of the pleura; but the right lung was tolerably healthy. No communication could be traced betwixt the abscesses and the bronchial canals.

In the two following cases, the disease appears in a more obscure form, and assuming in its early period more the appearance of incipient phthisis. It is chiefly on account of this form of the affection, as well as another to be next referred to, that I have introduced the subject in connexion with this Inquiry.

Case VIII.—A gentleman, aged 24, of a consumptive family, and himself tall, thin, and delicate, was first confined from his usual employments about 26th February 1818, by the symptoms of a common cold; he was hoarse, had slight cough and a loaded tongue, but very little fever. After several days, the hoarseness subsided; but the cough became rather more severe, and was troublesome in the night time. He had slight uneasiness in his breast, but his pulse was very little affected; and his whole appearance was such as indicated a tendency to phthisis, but no immediate danger. After several days more, his breathing became considerably oppressed, with some pain, but by no means acute, and a feeling of tightness across the præcordia. The pulse was then about 90. A bleeding was now employed, with immediate relief of all these symptoms; and, on the following day, he appeared very much better. This was about the 8th or 9th day of his illness. After another day or two, he was seized with a sudden and remarkable diminution of the secretion of urine, so that for a day or more he passed almost none; and the catheter was employed, under the suspicion of retention. Diuretics were then given; and, after a day or two, the secretion became natural. The cough still continued, and was at times severe, especially in the night; and he had considerable expectoration of a viscid matter, semipellucid and yellowish. The pulse was little affected; and there was now no complaint of pain, or uneasiness in breathing. He was next attacked by diarrhœa, which was at first removed by opiates; but returned, and was then removed in a few days by the ordinary astringents. Amid these various turns of the disorder, however, his strength had been sinking rapidly; he had now a pale, feeble, exhausted look; no appetite; the cough continuing as before, and the pulse little affected. Without any other urgent symptoms, he now sunk rapidly and died, exactly a month from his first confinement, and about three weeks from the appearance of the uneasiness in breathing, on account of which the bleeding was employed. *Dissection.*—The right lung was in some parts extensively hepatised, in others tubercular, but not suppurated. The left was a mass of disease throughout; great part of it hepatised, and in a state of great induration; and much of the internal structure of it soft and broken down, like putrid liver. On the external part there was a large, irregular cavity, which communicated with the cavity of the pleura by a large opening, as if a piece had been torn out. The inner surface of the cavity was of a dark red colour, and extremely irregular, and without any membranous lining. There was another smaller cavity of a similar kind adjoining to it. *In the cavity of the pleura there was some dark, sanious fluid, partly puriform.*

Case IX.—A gentleman, aged about 20, during the winter 1819–20, had been a good deal confined by an indolent swelling which formed on his left buttock. It began like a phlegmon, but increased to a great size; and no applications that were employed could either make it discuss or suppurate. After continuing long in this state, it at length began to subside, and gradually disappeared. In April he went to the country, and appeared to be in very good health. About the 1st of May he first began to feel himself unwell; he was feeble, depressed, nervous and tremulous; and his breath failed him in walking up an ascent. On the 7th he was seen by a medical friend, who only remarked a considerable frequency of pulse, which he saw no symptom to account for. I saw him on the 11th, when he came to Edinburgh. His look was then febrile and anxious; his pulse 130, and rather sharp; his breathing short, and about 32 in a minute; he had some cough, but not severe; no pain in his breast or side; and no uneasiness on a full inspiration; tongue clean; appetite good; pretty good sleep; had walked out a good deal the day before. A bleeding was advised, which he bore well; appeared relieved by it, and the blood was buffy.

12th.—Found him up, and dressed. Breathing much less hurried. Pulse 120, and soft; some cough in the night, but not severe. Appeared tremulous, anxious, and easily agitated; but his tongue was clean, and his appetite tolerable, and he complained of no uneasiness.

13th.—Pulse 116; breathing 24; considerable cough, but no uneasiness in any part of the thorax. Was desired to keep in bed, and the usual remedies were employed.

14th.—Pulse 112; cough rather more severe, especially in the night, with a deep hollow sound; otherwise little change.

15th.—Pulse 120. Some delirium in the night; cough at times severe, at other times free from it for several hours. Expectoration purulent; increasing weakness; no complaint of his breast, or of any pain. Breathing rather more frequent than natural.

16th.—Pulse 130. Much delirium; cough as before.

17th.—Pulse 140. Constant delirium; little cough; great exhaustion. Died in the night.

Dissection.—The right lung was a mass of disease; the whole much indurated; externally inflamed; internally there were several abscesses; particularly one large irregular ulcerated cavity, resembling that described in the preceding case. This was at the upper part; lower down there were several smaller cavities; and at the lower part there was a dense tubercular mass, of light ash colour. At the very lowest part of the lung, there was a very small part, which was in a tolerably healthy state. The left lung appeared much smaller than the right, and was throughout, both externally and internally, of a very dark colour, nearly black—in some places exhibiting dark gangrenous ulceration, and cavities containing dark sanious fluid—in other places a soft black mass, like putrid muscle. No part of it was in any degree in a healthy state; and there was no appearance of tubercles. The diaphragm on the left side exhibited, on its upper surface, a dark gangrenous appearance. There was considerable effusion in both cavities of the pleura; that in the right cavity was light-coloured and puriform, that in the left was dark and sanious. The other viscera were healthy.

The former of these cases is the most distinct example of the disease to which I refer under this head. The second is nearly allied to it, though still more rapid, and in its symptoms still more obscure; the frequency of pulse which was wanting in the former case alone indicating any thing of the nature of acute disease.

There is another modification of the disease in which the progress is much more slow, and yet similar appearances are met with on dissection. As it cannot be supposed that the symptoms could have gone on in this slow chronic form, with the morbid appearances which we find in these cases, I think it probable that, in the early stage of them, the hepatisation had been going on, commencing probably by a low inflammatory action; and that it had advanced to ulceration only a short time before death, when the symptoms generally become more severe. This was probably the course in the two following cases, which will serve to illustrate this modification of the disease. In the one it was complicated with tubercles, but there was no vestige of tubercles in the other.

CASE X.—A gentleman, aged 21, died after an illness of nearly six months, in which the symptoms were extremely obscure. He was first seized after exposure to cold with diarrhœa and vomiting, and he had at this time a peculiar, pale, exhausted look. The symptoms yielded readily to the ordinary remedies; and he then complained only of his stomach; of oppression and indigestion, with variable appetite. Soon after this, he was seized with cough, accompanied by a copious expectoration of viscid matter, tinged with blood. After a short time, however, these symptoms also disappeared, and he complained again only of his stomach. He was feeble and languid, with a sallow, waxen, unhealthy look, a variable appetite, and various uncomfortable feelings about his stomach; but he would not admit that he had any cough deserving attention. When closely questioned upon this point, he said he sometimes coughed a little when his stomach was empty, but not at any other time. His breathing was natural; and there was no uneasiness about the thorax. His pulse, when sitting up, was frequent and small; when in bed, it was natural. In this manner he went on for several months, without any thing more decided in the symptoms; while the progressive decline of his strength, and his whole appearance, indicated serious disease. About a fortnight before his death his cough increased considerably, with some expectoration and slight uneasiness in breathing; and he died gradually exhausted, having been confined to bed only a few days. *Dissection.*—Right lung most extensively indurated. On the anterior part of it there was a large opening, leading into a deep and extensive ulcerated cavity; at the lower part, a considerable portion was healthy. The left lung was almost entirely indurated, with more of the tubercular appearance; numerous small vomicæ and cavities containing a soft curdy matter. The other viscera were healthy.

CASE XI.—A girl, aged 18, of a very consumptive family, had suffered in early life repeated pneumonic attacks, but had enjoyed very good health for several years until January 1821, when she was affected with considerable cough and catarrhal symptoms. These complaints continued for some time, and then disappeared, leaving her, however, considerably reduced in flesh and strength; but she made no complaint, and was able to attend to her usual employments. In the middle of April she was seen by my friend Dr Begbie, who found her considerably reduced, with quick breathing and a small frequent pulse, but without cough or any uneasiness in the breast; appetite good; tongue clean; catamenia suppressed since January; bowels natural. She continued in this state, but becoming gradually weaker and more emaciated, until about the 7th of May, when she began to have a short dry cough. She still complained of no uneasiness in the breast; but her breathing was much hurried by any exertion, and was at all times short and much quicker than natural. From this time, by increasing weakness, she was confined to the house, though never entirely to bed: when in bed, she could only lie on her right side or her back. Hectic symptoms now appeared, with increase of cough, and quick and difficult breathing; and she died in the end of May in a state of extreme emaciation, but without having complained of any pain, and without having had any expectoration. *Dissection.*—The left lung adhered extensively; and, where it was free from adhesion, there was considerable effusion in the cavity of the pleura. The substance of the lung presented one mass of disease, part hepatised and part broken down into a dark-coloured, soft, gangrenous-looking matter; and there were several irregular ulcerated cavities, containing bloody, ill-conditioned pus. There was no vestige of tubercles, and the right lung was healthy.

The form of disease which these cases are intended to illustrate presents an affection remarkably different from the ordinary tubercular consumption. It may be complicated with tubercles, and it may occur without any vestige of them: and its progress, as appears from the cases, admits of remarkable varieties. In a practical view, it presents a subject of much interest, as it is probable that the more acute forms of it would admit of active treatment in their early stages, with more prospect of success than we can hope for in any period of tubercular consumption.

Sect. VIII.—*Practical Conclusions.*

The slight and imperfect outline of this important subject, which I have attempted in this and a former paper, leads to some conclusions of considerable importance in regard to the prognosis and treatment of consumptive diseases. On these points we still find a remarkable diversity of opinion,—some considering consumption as in all cases a hopeless disease, while others have with confidence detailed cases that have terminated favourably even in the more advanced stages. In some of these fortunate examples, the recoveries have been ascribed to tonics, nourishing diet, and exercise; in others, to bleeding, spare diet, and other remedies of an antiphlogistic nature; and, by men of observation and talent, these opposite methods have been recommended with equal confidence, as successful modes of treating consumption. On these contradictory statements, some light may probably be thrown by attention to the various forms of disease, of which I have attempted an outline in the former part of this Inquiry, and which assume in a great degree the characters of consumption. They vary exceedingly in their nature, and in the degree of danger which accompanies them,—and they certainly require varied and even opposite modes of treatment. This part of the subject I must allude to very briefly.

I. In the affection which, for the sake of a name, I have called *Sympathetic Cough*, the prognosis is generally favourable; though, in many cases, the appearances are such as to excite considerable alarm. The treatment must vary according to the cause: In the most common form of it, the tonic treatment is required, with exercise, nourishing diet, and minute attention to the bowels.

II. *The Cough from Irritation of the Diaphragm*, is perhaps most commonly connected with organic disease in the abdomen; and the prognosis consequently will be unfavourable. When the cause is more of an active kind, there is more chance of recovery, as in that which is connected with certain acute affections of the liver.

III. In the *Laryngæal Phthisis*, the prognosis will depend very much on the period of the disease. If, by minute attention, the nature of the case be detected at a very early period, and the necessary practice adopted with decision and promptitude, I believe its progress may be arrested in a great proportion of instances. If this period be allowed to go by, the disease is generally hopeless. The remedies, in the first stage, are blood-letting, particularly large and repeated topical bleeding, blistering, issues, spare diet, perfect rest, and regulated temperature. In the advanced stages, it admits only of palliative treatment.

IV. *The Disease of the Bronchial Membrane* may terminate favourably in all its stages, even in the more advanced, when the patient is much reduced, and has very much the appearance of an advanced period of consumption. The remedies in the early stage are blood-letting, particularly large topical bleeding, blistering, antimonials, with opiates, digitalis, spare diet, rest, and regulated temperature; in the more advanced stages, tonics, stimulants, the balsams, nourishing diet, exercise in the open air, and change of climate.

V. *The Chronic Inflammation of the Pleura* may often be arrested at its commencement; in its advanced stages, it is generally hopeless. Much attention is required for detecting its existence; as, from the pulse being in many cases little affected, there is great danger of the pain being considered as muscular, and the period being allowed to go by, when it may be treated with success. The remedies are blood-letting, particularly topical bleeding, blistering, issues, spare diet, confinement, and perfect rest.

VI. *The Disease of the Posterior Mediastinum and Bronchial Glands* is generally hopeless. It is, in most cases, combined with tubercular disease of the lungs.

VII. *The Abscess from Active Inflammation* may be suddenly fatal by suffocation; or it may be spit up in immense quantities, and the strength of the patient may sink gradually under the discharge, with all the symptoms of consumption. But it may also terminate favourably, even after a large quantity of purulent matter has been expectorated; the abscess healing gradually, if the lungs are otherwise healthy, as a healthy abscess does in any other part of the body. The treatment in this case must be upon the tonic plan.

VIII. *Hæmoptysis* may be an acute disease of lungs otherwise healthy, or it may arise from the bronchial membrane; and, in either case, with reasonable attention, the danger is not great. If it arise from lungs previously diseased, it is likely to be followed by consumption; or it may be suddenly fatal by suffocation.

IX. In regard to the *True Consumption*, the facts which have been stated seem to lead to principles of considerable importance. Consumption may be considered as the ulceration of indurated lungs; but in the mass composing this induration, there is a variety of structures, differing remarkably from each other in their characters, and probably differing materially in the morbid changes which they undergo. The white tubercle and the hepatised induration seem to form the two extremes; the fleshy tubercle and the melanosis probably hold intermediate places. The white tubercle appears to pass slowly and insidiously into ulceration without active symptoms, while the hepatised induration is often the seat of considerable inflammatory action. Now, the mass of indurated lung, when we find an opportunity of examining it at an early period, before it has been much destroyed by ulceration, generally appears to be composed of a mixture of these structures, and the proportions of them appear to vary in different cases;—some consisting chiefly of the tubercular disease, with very little of the hepatisation; others of the hepatisation, with tubercles imbedded in it in various proportions; while some consist of the hepatised induration, without any appearance of tubercles. Hence probably arises a source of great variety in the character of the morbid actions, some being more, others less acute; and of corresponding variety in the treatment, which may be adopted in the early stages; some cases being the subjects of antiphlogistic treatment, with considerable prospect of being able to arrest their progress; others advancing slowly and insidiously, without any mode of treatment being of the slightest avail. Other important varieties arise from complication with some of the other affections formerly alluded to; the disease in some cases commencing in the pleura or the bronchial membrane, and afterwards advancing to the lungs; or it may commence in the form of active inflammation in a part of the lungs which is healthy, and, extending to a part which is indurated, may excite there the unhealthy ulceration, which might perhaps have been prevented had the affection been checked at first in the active stage. From these sources of variety will appear the difficulty of laying down any precise rules for the treatment of consumptive diseases, and, still more, the impossibility of proposing any one mode of treatment which is to be applicable to all the forms of consumption. There is, perhaps, no class of diseases which admits of greater variety, or in which our success must depend more intimately on minute attention to the characters of individual cases in their early stages. It is only by a careful investigation of these varieties, that we can ever expect to add any thing to our knowledge of consumption, and not by the vague and flimsy speculations by which the public mind is by turns amused and distracted. Consumption, says one, is a disease of debility—says another, it is a disease of excitement. The sound pathologist knows that it is a morbid degeneration of a vital organ; and that except he can combat it there, in its proper seat, the excitement and the debility are equally beyond his control. In this morbid condition there are many varieties, and many of them are obviously beyond the reach of any human aid. There are others in which the tonic treatment is proper and expedient, and in which supporting the strength of the patient by every possible means, is giving him the only little chance that remains to him of throwing off the disease. But in others, certainly the antiphlogistic treatment is required; and, by the judicious employment of it at the proper period, some considerable prospect is held out to us of arresting the disease at its first appearance. If these be trifled with, or injudiciously treated at the commencement, the period for active practice is soon gone by, and the error is fatal.

II.

Remarks on Tropical Diseases. By James Thomson, M. D. &c. Jamaica.

The laborious duties of a professional life in this country have long prevented me from extending, in a proper manner, the results of various inquiries connected with Tropical Diseases. These I trust will, however, shortly appear in the form of a second volume to the well-known *Essays and Letters by West Indian Practitioners.* In the mean time, I have to request the insertion of the following brief notices of some of these subjects, with the view of their being made known to those whose situation affords similar opportunities for investigation.

You were kind enough to give a place, in your Journal for

July 1819,* to a few observations on Yaws. I have continued to prosecute the subject since that time, and have been enabled to procure some additional information. I have to apologize for the badness of the drawing of the different stages of the eruption which you had engraved. I then could procure no assistance. I have, however, now obtained six excellent drawings, coloured from nature, made by an ingenious artist; and these, with some others illustrating cutaneous diseases, will appear in the publication alluded to.

The Latent Period I have ascertained, by several additional experiments, to extend from seven to ten weeks; further experience may produce more accuracy. I lately watched two cases very carefully, in order to ascertain this point; the subjects had each of them ulcers, and the yaws altered their character in a striking manner; and as such cases are always to be avoided, I ordered yawey matter from another subject to be introduced by eight or nine punctures on various parts of the body. In one, the eruption appeared in six weeks; in the other, nine weeks elapsed. In the mean time, strong stimulating dressings were used to the sores, and they were eventually healed up.

The case of the Danish nobleman, mentioned by Dr Adams, where he had been ten months absent from the West Indies, may seem to invalidate the statement now made. I am sorry to be obliged to question the discrimination of that accurate observer, increased, as it is, by the testimony of my late worthy friend Dr Wright, who knew the disease so well. But there are many circumstances attending the case that excite suspicion as to its being yaws; the time that had elapsed—the acknowledged increased difficulty in the constitution of white people to receive the infection—its comparative mildness in them—the total want of fever in general in its course—a latent period of ten months—constitute an anomaly that would startle any medical man. It is very rare to meet with ulceration on the throat, although, in the negro, the mouth be surrounded with sores. What name to give the disease, so accurately described by Dr Adams, I am quite at a loss. My venerable friend Dr Owen of this Island, who has practised upwards of half a century, says he has often met with similar cases, both in white and black patients, in which, notwithstanding his long experience, he has, as well as others, pronounced a wrong judgment as to their being yaws. Young men of a sanguine temperament, coming to a warm climate, are often attacked with fevers that end in obstinate *crustaceous* eruptions, which resist every mode of treatment, and are aggravated by a wretched diet of salted meat, and liberal abuse of new ill-distilled ardent spirits, to be found on every sugar estate in abundance. A melancholy case was lately related to me of a fine young man who had recently arrived from Europe. Nature had taken that salutary mode of adapting his system to his new residence. In vain did the young gentleman protest that the disease was not yaws, supported by the testimony of the medical attendant; the tyrannical monster under whom he was situated, ordered him to retire to a miserable hut on a distant part of the estate, and to avoid all intercourse, which he effectually did, as he was found next morning weltering in his blood. In negroes I have repeatedly seen these singular crustaceous disorders, and been much puzzled as to their designation. But what does a name signify? —it will not enable you to cure the disorder, but only to speak about it. I have at present a negro patient under my care, who, for these twelve months past, has been afflicted with a constant succession of suppurating crustaceous sores; on his breast there is a patch nearly a foot square, which resembles much confluent small-pox in the latter stage. No preparation of any medicine has given relief as yet.

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* Edin. Med. and Surgical Journal, Vol. XV. p. 321.

The period when yawey matter can excite the disease in others is uncertain. I have ordered matter to be taken at three weeks from the appearance of the eruption, and found the eruption to follow in the usual time. The crops of yaws are various. Some will only have one copious eruption, and these of a large healthy nature, with well defined edges. They continue on the skin for a length of time; the subject enjoys his usual health; and when they contract, no cicatrix remains. This is the most favourable form; and, when the individual is of a robust habit, and well fed, is terminated in seven months. More frequently, however, the case is otherwise. A few small watery yaws make their appearance; they recede in a month or so, and shoot up no fungus. The patient is puny, and looses flesh. Unless great care is taken of him at this period, the disease recedes, as it is called, and he dies dropsical. Nourishing diet, warm clothing, will in a month or two induce a return of the eruption in a more copious form, and with a broader basis and more elevated surface. The number of these crops is various, generally four. The old experienced nurses tell you, that the yaw is broader the older the disease is, and the number much fewer. This is not universally the case. I have seen many who have had a copious eruption, which dried up and was succeeded by a watery small-sized yaw, called the *Guinea Corn Yaw*, that discharged nothing but thin acrid humour, and required the greatest care to prevent the sore getting into the state of an irritable ulcer. In these cases there is every variety, depending on causes not within our control at present. I have known many children continue in the disease nearly four years, although every possible care was taken of them, and the most liberal allowance of food given them regularly. The skin would be free from the disease for twelve months, or only a small incurable sore remain on the foot; they would be sent to their work, and in a few months return with all their former symptoms. This is a most deceitful and dangerous circumstance. I have known gangs of fine healthy children get into a diseased state from this cause. We should always, therefore, keep those who are reported as free from yaws as separate as possible from all others for a few months. When children have several successive crops of a small watery or Guinea corn yaw, as the negroes call it, we should never rest satisfied as to the patient having passed through the disease; there is no security in this case. I have, in these instances, repeatedly ordered the subject to be inoculated with matter from a well-formed yaw, and have, with much pleasure, seen a favourable eruption follow in a few weeks. I have had under my care for these five years past a negro woman, whom I have seen only occasionally. Three or four times yearly she has an eruption of these small watery yaws, which speedily dry up without any critical symptoms. Fever always attends the commencement of the eruption. I have ordered many times yawey matter to be inserted into various parts of her body, and seen the operation performed myself; yet the punctures constantly healed up. This woman has, during this period, produced two children, one of whom had yaws while at the breast. Such a case must be looked on as one of those anomalies that present themselves in every department of medical practice.

Yawey matter inserted by punctures into the bodies of those who have passed through the disease, does not create either local or constitutional symptoms. This I have confirmed by numerous experiments. A woman, however, who has passed through the disease, and gives suck to a *yawey* child, is very apt to get a dreadful ulcer on the breast, which becomes phagedenic, and ultimately fatal, if the most stimulating dressings are not constantly employed. I have witnessed several shocking cases of this description. Hæmorrhagy generally supervenes. The edges and appearance of the ulcer are very different from those of the common yawey ulcer. The moment the slightest excoriation is perceived, the child must be removed, and caustic dressings employed. Many practitioners with whom I have conversed have stated their belief that the mammary yaw was always the spot where the original infection was deposited. Nothing can be more erroneous than this idea. In many cases, during the first crop of yaws, there are four or five of these active sores which assume, from some peculiarity, an increased degree of activity, and leave behind them a broad superficial scar. Frequently I have found one of these an open ulcer, as the only relic of the first eruption; and in a few months it would assume a peculiar character, in consequence of a fresh attack having seated itself in this particular spot. When this happens, the yaws seldom come out on the body; and the ulcer gradually increases in size, with a thickening of the muscular parts, which greatly impeded its finally healing. In confirmation of this, I may mention, that in most instances where artificial inoculation was practised, the punctures seldom or never assumed any unusual appearance.

When three or four crops of yaws succeed each other rapidly, we often find that an ulcer remains in an indolent state after each crop. These ulcers, which the negroes call the mother yaw, are easily cured by strong styptic applications, but they leave a permanent mark. When the yaws attack a constitutional ulcer, and induce that appearance I have already described, the patient will often pass through the disease without any eruption manifesting itself. After a certain period, the ulcer will return to the character which it formerly had, and the individual will be secure from the morbid poison. This occurrence is, however, always to be avoided, as a permanent discharge generally remains, and the bones not unfrequently become carious. The moment we are aware of it, every exertion is to be made to bring the edges of the sore together; and stimulating absorbent dressings are to be used, with the flannel roller changed morning and evening. If in a few weeks the character of the sore does not alter, nor the eruption again make its appearance, I never hesitate to order several punctures to be made with active matter in various parts of the body; and I have generally succeeded in my expectations of producing a permanent eruption on the surface. I have repeatedly seen matter, taken from an old ulcer which had assumed the yawey character, excite the disease in its purest form; yet we are not to trust to a person being secure from the disease, because he has long had a drain of this nature; I have known several who were reported to have had these issues in early life, to be attacked when they imagined themselves secure from infection.

From numerous experiments, I do not find that inoculation renders the disease either shorter or milder in its course.

Animals are not liable to the infection, from the result of those experiments I have repeatedly instituted. The blood of diseased subjects does not produce the infection. Although I have no positive information, yet I greatly suspect that the disease is capable of being propagated by means of an atmosphere impregnated with a solution of the morbid poison. The rapid manner in which it spreads on some occasions, favours this opinion.

Negroes say that children produced by women who have had the disease in pregnancy are secure from it afterwards. This is very doubtful. I saw a child born under these circumstances inoculated with fresh active matter, without any result. Those who have passed through the yaws are not again susceptible of the disease. I have been informed by my venerable friend Dr Owen, whose discriminating powers every one justly values, that two instances have occurred to him, in his long practice, where the disease has appeared *twice* in one individual. Twenty years intervened betwixt the first and second eruption. The details of these cases will afterwards appear.

I have always had so great an objection to the use of mercury in this disease, that I cannot speak from my own experience as to its effects; but, unfortunately, we have too many histories of the dreadful consequences of its early and indiscriminate application. A medical friend who, on coming to this island, was employed on one large estate, and was ordered by the *enlightened* proprietor to put all the yaw patients under mercury whenever it appeared, without regard to *constitution or any thing else*, has favoured me with the perusal of his Journal, made up from daily observation. It contains some valuable facts, the particulars of which shall afterwards be detailed to the profession. I may merely now mention, that, out of twenty patients who had mercury given them soon after the eruption came out, the yaws disappeared in all of them within the month. At the end of six months, seven had relapses, five of whom died bloated; six had a second crop of a bad watery yaw; and most of the others were afflicted with severe bone-ach and pains. Greater success attended the medicine when it was given at a more advanced stage; but, in general, the relapses and injury done to the constitution was much greater than the temporary advantage in shortening the disease. If there was any disposition to leprosy, the mercury never failed to call it into action, and assumed the most varied appearance; this fact, of itself, is sufficient to restrain greatly its application. With most medical men, the practice is fast diminishing; convinced as most of them are, that, as a morbid poison, it must, like all others, have its periods of increase, maturity, and decline.

As to those dreadful cases that are mentioned, of the effects of ill-cured yaws, I firmly believe that they are for the most part misunderstood, and are to be referred to a very different origin. As all those engaged in the planting line have occasion to witness the disorders of negroes, and of course form an opinion of their own, they universally, along with many medical men, refer all these constitutional derangements either to yaws ill cured, or the venereal disease. It would be a matter of little consequence what they called them, did not the practice they adopt lead to the most fatal consequences.

Amidst all the confused and contradictory mass of materials that one is obliged to wade through before he can hope to arrive at any thing satisfactory on the subject of leprosy, we nowhere find, at least so far as my reading goes, any distinct statement of the modified forms it assumes in a distant progeny; that these forms should exist, we may *a priori* infer, as they are more or less exposed to the exciting causes. Most of those who have observed these complaints with any pretensions to accuracy, have engaged themselves in detailing the severer primary forms, and horrid spectacles they do present. We know, however, that by marriage, altered diet, and change of climate, the disease will be quiescent in the immediate descendant, but appear in a more remote one, and that too in the most different shapes. That such is the case with most of the descendants of the negroes in the Sugar Colonies, I am perfectly convinced; and I have endeavoured to collect a series of these, illustrating the subject now mentioned. The materials have greatly accumulated; and shortly I will be enabled to arrange them, so as to point out distinctly the modified forms of hereditary leprosy.

I do not believe that, when the yaws are fully established on the skin, any external application will speedily remove them; and much less that mixture of lime-juice, iron-rust, and gunpowder, formerly said to have been employed on board slave ships. I was lately shown a negro by a friend of mine, on whom this operation was said to have been performed. He told me the yaws only came out *one, one*, as their phrase is, and that they immediately used something that burnt his skin severely, gave him a nasty drink, and then rubbed all his body over with a black composition. These slave-traders must have derived this plan from the negroes themselves, as it is a common African custom to this day, and I have often seen it used; but then it is only when they wish to conceal the disease, and there are not more than one or two pustules on the body. If the eruption was copious, any attempt would soon prove mortal, as every one knows the fatal consequences of repelled yaws.

Locked Jaw.—The following case of tetanus clearly refutes the axiom propagated by the highest medical authority, that when the system is affected with mercury the patient is free from danger.

W. O., a stout negro tradesman, had a rusty nail run into the sole of his foot, nearly an inch in depth. It was immediately extracted, and bled freely, and afterwards dressed with laudanum and cerate. Mercury, combined with opium, was commenced the same day, with the view of preventing any future bad consequences. A large poultice was applied to the foot, with stimulating substances, so as to induce rapid suppuration. On the third and fourth day, he complained of some stiffness of the jaw, and soreness in the throat; this, however, seemed accidental, and went off entirely. On the seventh day, the mercury had completely affected the gums, and considerable salivation followed. It was therefore stopped, and a pill of one grain of opium and six of camphor only continued. The discharge from the wound lessened, and was healthy. Every thing went on favourably till the thirteenth day, when I very unexpectedly was sent for, and, to my great surprise and grief, found strong spasmodic twitches in the leg. I immediately ordered the warm bath, cut down upon the wounded surface, and laid it open in several directions. A spoonful of ether was given every half hour; and, in three hours, he had swallowed four dessert spoonfuls of laudanum, and a drachm and a half of camphor dissolved in a small quantity of strong spirits. The pulse was increased only fourteen beats, and that only in quickness, not in strength. He did not perceive the least confusion in his head; the jaw was not fastened; and he conversed freely and sensibly, and was quite aware of his situation. He took leave of all his relations in the most affectionate manner; and a melancholy sight it was, to see a fine robust young man, the father of a family, who, but a few hours before, had no idea of his danger, about to perish, and to know we could render him no assistance. There would be an interval of ten minutes at a time when the spasms would leave him; and then in a moment he would start as a person who receives an unexpected shock of electricity. In one of these he expired, twenty hours after the first symptom had appeared; the body was not opened.

At a distance from medical references, I cannot say if such cases have occurred to others; and my former reading does not serve me with any of this description. The subject was actually under the influence of mercury when he was attacked. The property on which the negro resided, was one that had lost severals in this manner from external injuries; and this was the cause of my adopting what I conceived to be a preventive plan.

This is the only case of symptomatic tetanus I have met with, where the symptoms invaded after the system had received the mercurial action. I shall hereafter relate several cases at length, where, by means of mercurial frictions, and calomel internally, salivation had been raised after the appearance of the disease, and yet the termination was fatal. I have seen them expire with a *stream* of saliva coming from their mouth.

One of these cases only was idiopathic tetanus; the others in consequence of previous injuries. The last of these I witnessed was in the person of a fine stout negro, who was thrown by accident under the wheel of a heavy-laden waggon, and sustained a severe compound fracture of the leg. Amputation was performed immediately; and calomel, with frictions, used afterwards. On the fourth day his gums were affected; the salivation increased till the sixth and seventh, when he was seized, and expired with locked jaw in a few hours.

The following singular case of trismus *a frigore*, which was left nearly to the efforts of nature, may create some suspicion as to the effects of *amber*, *frictions*, *blisters*, *mercury*, and *the like*.

A fine healthy negro, 17 years of age, laid himself down to sleep, exposed to the land breeze. On waking next morning, he complained of a severe pain shooting down the lower part of his back and thighs. He could not stand on his feet, nor bend the knees. No notice was taken of this, as it was thought he meant only to avoid his work. On the third day, he could not raise himself from the horizontal posture; and when this was attempted by others, his heels and head were in a straight line. It was still thought to be tricks, and a purge was all that was given him; it operated freely. On the fifth day, he complained of soreness of the throat, and sudden catchings, when he attempted to swallow, with stiffness in the neck. I saw him, for the first time, on the seventh day. He could not then speak, but had the complete use of his arms, and motioned to me where it hurt him most. When attempted to be raised, he was instantly seized with alarming spasms, and made signs to be left alone. A laxative glyster was given, and I left directions for further remedies. These, however, not being at command, were never given, as I afterwards understood. Next day, the 8th, I found he could bend one of his legs, but not the other. The hands had been seized with spasmodic contractions during the night. As he refused every thing, this day passed without his taking any medicine; the bowels were constipated, and the abdominal muscles much contracted. While I was present, he had several severe spasmodic attacks, chiefly of the neck and upper extremities. A blister was ordered; but he immediately displaced it. I did not see him till the 10th day, when I found he could stand on both feet; that his bowels had answered freely to a purge of castor oil. He could open his jaws about half an inch; but, unless very cautious when he made any effort to swallow, the food was squirted out, and he was thrown down by a severe convulsive attack. From this period, without any medicine whatsoever, he continued gradually to recover, having only a stiffness of the neck, which remained for some weeks afterwards.

Although I cannot boast of extensive experience in this class of disorders, yet, from those I have witnessed, no two cases have been alike either in duration or severity. The same remark has been also made by others. It is a mistaken idea to conceive that idiopathic tetanus is always more severe and rapid than the traumatic (the remark is made, I think, by *Dr Reid* on Tetanus); the reverse generally holds true. The symptoms invade gradually, and go off in like manner. The cold affusion promises most success also in these cases; but pardon me if I question its utility under any circumstances. I may here mention, that the danger of life being extinguished by no means depends on the severity of the convulsions. The danger and sudden termination is equally great when the symptoms excite no particular degree of alarm. I have seen those recover where agitation of the body exceeded any thing that can be well imagined; the patient that died while under the influence of mercury, expired in the act of drinking some wine; and in the trismus of infants, a slight convulsion in the hands is often all that precedes death. I never saw *emprosthotonos;* and; from the state of the development of the muscular system in the infant, we might naturally expect to meet with it more frequently in them. Many are said to question its occurrence altogether.

Since I last stated to you the result of some dissections in nervous diseases, I have had occasion to open the bodies of three patients, two of whom died from traumatic tetanus. After the most minute examination of every part, not omitting the *spinal marrow*, I have met with such a variety of appearances, that I much question whether we can fix on any particular spot as more uniformly diseased than the rest. The brain and spinal marrow showed symptoms of apparently increased vascular action; but I have often met with similar occurrences, where there was no possible relation betwixt them, and where, when they were not the object of the *theorist's* research, they have been totally neglected.

I have often witnessed the scene, when the discovery of a *tortuous blood-vessel* on the *spinal cord* has raised a shout of universal confirmation. Indeed, when we come to reflect on what we have read and what we have seen of tetanus, we are much disposed to deny the existence of any rational pathology, and, much more so, of any rational mode of treatment.

I have examined several of the bodies of infants who have sunk under trismus; and here again I have been tantalized and disappointed. Some time since, I vainly imagined that I had ascertained the seat of disease, and proceeded to erect a theory, and corresponding mode of practice; but several recent dissections have thrown me completely into the back ground. After the most minute examination, I have not found a single morbid spot to fix a miserable theory on: and from some medical friends, who have conducted their researches in a similar manner to my own, I have had the same kind of negative information. As to the causes that are enumerated by different authors, taken singly, they are incapable of exciting it.

The smoke of wood fires is thought by Dr Clarke to be the cause; but Dr Winterbottom, in his history of the diseases of Africa, justly remarks, that, where this custom is universally prevalent, such a thing is unknown. The bad treatment of the navel-string is by others insisted on. In Africa, they use the actual cautery, and never pay any future attention to the sore. I have myself examined nearly forty cases of infants that have sunk under the complaint; in many, I have looked at no other part but the navel. I have found it in all states, sometimes perfectly healed, especially if the infant had lived several days; at other times, a simple clean wound. When death occurred on the fifth or sixth day, the sore was frequently in a raw state. I never yet saw it in a sphacelated condition. In a few instances, where the infant had perished from a different cause, I have found ulceration on the navel. Where every possible care has been paid to the proper evacuation of the meconium, and changing the wet linen, the disease has still prevailed. On some estates, and in certain districts of country, it will not be known for many years; while in others they can hardly rear a child. One property will be remarkably successful, and the adjoining one equally unfortunate. The midwife from the successful property is frequently borrowed, and the mortality still continues. I have repeatedly seen excellent lying-in establishments erected, and the most rigorous discipline adopted; and yet the children perish. I do not mean, by this, to say that lying-in houses are not beneficial; they are highly so; only that, with all our care, we are often defeated in our best directed exertions.

The French settlers, from an idea that the impression of the external air is the cause, have a custom of anointing the bodies of their new-born infants with oil for the first nine days. I have several times followed this plan, I thought with advantage. The conclusion that strikes me as nearest the truth is, that the disease can be ascribed to no one particular cause; that it is our duty to provide a faithful nurse, good accommodations, plenty of childbed-linen, and the utmost caution to avoid every source of irritation.

Analogous in its latter symptoms to locked jaw, is *Hydrophobia.* I have had an opportunity of examining, in the minutest manner, two cases of persons bit by rabid animals. The spinal marrow was not omitted. Not the smallest diseased appearance was manifested, except slight inflammation of the throat. I have also examined the bodies of three animals that died mad, without any thing being found. I had an opportunity of inoculating the saliva of these animals without any effect. *Giraud* has also done the same. I knew a nurse who was bit in the arm by a child labouring under hydrophobia. Nothing was done, and no effect followed. Was ever an instance known of hydrophobia being communicated by the bite of a human being? An elephant was bit by a dog, and died mad; (see Extracts from Tippoo Sultan's Library.) I knew an instance of a goat being bit by a mad dog; he went mad in three weeks. What is the interval or latent period in the brute creation? Is it the same as in the human species? I suspect much shorter. Simple heat will not create the disease, as it is not more common in tropical regions. Some years ago, almost all the dogs in St Domingo were infected, from the bites of some rabid animals that were brought from America; and it has, since that period, been repeatedly traced to infection from that quarter. It has also been repeatedly communicated to the race of dogs in this island. A gentleman long resident in this island has often mentioned to me, that he has seen extensive herds of swine seized with every symptom of madness, tearing each other, and using the most violent motions; they were generally destroyed. The dogs that are kept on many estates for the purposes of destroying rats, so injurious to cane pieces, are occasionally seized with a kind of madness, biting and tearing each other, and any object that comes in their way; these occurrences are usually perceived after long tracts of very hot dry weather. Is the poison absorbed from the wounded surface? or does the constitution, after a certain period, prepare matter of a quality similar to that first introduced, as seems to be the case in other morbid poisons, as small-pox, yaws, and the like? Is the saliva of a rabid animal alone capable of exciting the disease?

Professor Autenrieth, if I remember right, recommends amputation of the member when the animal has been ascertained to be mad; he performed it five days after the bite, and the patient escaped. This seems the most certain means; and if ever I had the misfortune to be bitten by a rabid animal, I would submit to the operation immediately or even some days after. Next to that, I would prefer excision, and then the plan of keeping up a constant discharge by stimulating dressings. Is there any well authenticated case where the disease attacked after the mercurial action was established? I once saw an instance in a goat, which was bit by a dog, and where mercury was given. The poor creature ran at the mouth terribly for some days; but soon afterwards died mad.

Worms.—The death of the greater number of children in many parts of this Island, and, I believe, in general over the West Indies, is referable to worms; and it is the more to be lamented, as, by the timely and regulated administration of remedies, we might do away with a great deal of the mortality. In England, the disease is attended with a long and harassing train of symptoms, that allow the practitioner time to exhibit his active medicines, and increase the chances of success; but here, on the contrary, when the worms begin to *move*, as it is termed, in a day or two at most, not unfrequently in a few hours, the child is carried off, in defiance of every assistance. The food of most children is entirely vegetable here; and the constant succession of fruits so abundantly supplied by nature, causes a secretion of mucus in the intestines that is highly favourable to the development of these vermin, and defeats the active properties of our strongest anthelmintics in the largest doses. There is no symptom, nor series of symptoms, which invade children, that are not referable to worms; and although these may disappear without any being evacuated, we are not to conclude that we have been mistaken in our opinion of the case. Many weeks after the subject has been restored to health, masses will come away without any further remedy being taken. The symptoms most commonly present are indigestion, watery stools, vomiting, fetid breath, dull, heavy, bloated countenance, voracious appetite, and the food taken passed quickly. When the proper remedies have been too long omitted, the worm fever ensues, and in the strongest forms, so as to deceive the most experienced; dry burning skin, delirium, breathlessness, cough of a peculiar sound, every symptom of pleurisy and dysentery, convulsions and tetanus; the belly is generally swelled, and gets tympanitic after meals. There is a distinction, however, which I have frequently known to lead to serious errors, by not being properly attended to. Many negro children have a singular prominence and hardness of the abdomen, which remains for a few years, and gradually disappears as they advance in life. No attention is paid to it by the parents, and it is productive of no bad consequences: the cause is not apparent. A person in the habit of seeing children in a naked state can readily distinguish this affection, from the swelling that takes place in consequence of worms. In the former, it is lower down; to the feel soft and yielding compared to the other; the skin is of a healthy appearance; and there is always a strong curvature in the lower part of the spine. In the latter, the tumefaction commences from the pit of the stomach, and is general all over the abdomen; it is tense, feels hot, and increases much after meals; the face bloated and heavy, beside other symptoms. I cannot better describe the various symptoms attendant on worms, than by giving a few cases of each, as they are commonly observed. The European practitioner will be enabled to compare them with those that come under his notice.

A fine negro boy, 10 years of age, healthy in general, complained of his bowels; merely a laxative was given. The next day I was called to see him; found the extremities cold; pulse scarcely to be felt; had vomited three *teretes* worms alive. A wine glassful of strong hartshorn and water with turpentine was given. He was placed in the warm bath, and afterwards treated with external frictions and stimulants; but he died in three hours. Several worms came out at his mouth after death. The body was not allowed to be opened, though requested.

A Quadroon child (the produce of a white and a mulatto), six years of age, had previously been troubled with worms. Many were voided, but none for the last six months. From the appearance of the belly, I advised a pretty active course of worm-medicine. After a puke, six grains of calomel and two drachms of the *sempre vive* juice (aloes) were given. In two hours the child was seized with a strong convulsion, and died. Several worms were passed after death.

A brother of this child, two years afterwards, expired nearly under similar circumstances. On opening the body, the intestines were in many places lined with masses of the round worm.

Similar cases of the sudden extinction of life from worms are by no means uncommon; they generally happen after some active purge has been given, or even after a full meal. The negroes say that the worms *budge.* Whether the impression of these vermin on *fresh* surfaces can act in so singular a manner, is uncertain.

A child, two years of age, was seized with a spasmodic contraction of the jaw, and general rigidity of the body. Blisters, frictions, warm bath, &c. were used in succession; the bowels exceedingly costive. On the fourth day, a glyster of the solution of aloes and oil was administered. Immediately a discharge of nearly a handful of small worms followed, and relief was speedily obtained. A great many continued to be passed; and the child, though abandoned as lost, ultimately recovered.

A boy, twelve years of age, was attacked with all the symptoms of *chorea Sancti Viti.* He had also the *risus sardonicus* very distinctly. The negroes imagined him bewitched, and would give him no assistance. The complaint had lasted several days before I saw him. I immediately suspected worms; gave a powerful emetic, followed by purges and fetid glysters. Although none were passed for a week, he got considerable ease; when, one morning after taking his dose of turpentine and aloes, he vomited five large worms, only one of which was alive. Severals were afterwards voided downwards.

An infant, not three months old, was subject to severe fits, with griping. The opisthotonos was most distressing and frequent. Little was done, the disease not being understood. The fits gradually ceased; and, three weeks after, the infant passed many small thread-worms, some in a dissolved state, others alive.

I have known infants not six weeks old pass worms. Many negro women have a custom of early feeding them with spoon diet, which may account for it.

A stout negro complained of difficult respiration, cough, sense of globus, and spasmodic affection of the jaw, with fever; he was bled, blistered, and scientifically treated for pleurisy, with little relief, till he voided twelve large *teretes* worms.

I was called to see a fine mulatto child, ten years of age. She had been troubled with a peculiar cough for some weeks previous, called by the nurses here *Stomachic* cough. During the night previous to my seeing her, she had been suddenly seized with a fainting fit, which was succeeded by the most painful and anxious breathing I ever witnessed. The child clung to me, and prayed for relief, or she would be instantly suffocated; the pulse was rapid, but not full, nor strong. Having seen the patient previously, I suspected the case to originate from worms. My opinion was treated as ridiculous, and she was bled and purged, and had the usual expectorants given. The urgent symptoms abated; but the cough remained as severe as ever. I still urged my opinion, and was at last allowed to practise. After a powerful emetic, and repeated doses of turpentine, sweet oil, and the expressed green juice of tobacco, I had the satisfaction to see nearly thirty *teretes* worms pass downwards. The child was much reduced; but, by a course of lime-water and nourishment, ultimately got round.

Such cases are not rare; and, unless the greatest caution is made use of, they will often prove fatal. My late worthy friend Dr Wright, in a small manuscript of his in my possession, justly observes—" I have very often seen in the West Indies, among negroes, difficult, quick breathing, with bad expectoration, fever, and other frightful symptoms of inflammation of the breast, take their principal rise from quantities of putrid bile, and other sordes lodged in the primæ viæ; *and often also from worms.* An immense discharge of one or the other of these will take place suddenly, and leave the Doctor and his blisters quite in the back ground."

A girl of twelve years of age was long complaining of irregular fever and bowel complaints. She was carried to different parts, her disease being considered of another nature. Bark and every other remedy was tried, but no vermifuge ones. *Ascites* ensued. After her death, many worms were found, in large masses, in a live state.

Indigestion, vomiting, diarrhœa, remittent fever, with delirium, and symptoms frequent in European children, are also common here, and prove equally obstinate in the cure. Emaciation takes place to a great degree. The mesenteric glands are, however, seldom or never diseased in any dissections I have made of children.

But the most fatal consequence that attends irritation from worms, when the complaint has been long neglected or badly managed, is effusion of water into the cavities of the brain. The superior development of the head at an early period, and the intimate sympathy that subsists between the abdominal viscera and the brain, would naturally lead us to expect this termination.

When the patient is very young, and unable to explain its feelings, there exist great irritation in the bowels, stools watery, frequent, and attended with much flatus; the belly feels hot, and is swelled; there is irregular fever, with convulsions and vomiting, and perpetual fretfulness. Some trifling laxative may be given, which relieves the symptoms for a time; but usually the child grows droopy, and cannot raise its head; takes every thing offered it, and cries on being disturbed. A medical person seldom sees the patient before this period, when he gets a confused imperfect history, and is often at a loss what to make of it, till, in a short time, the marked indications of hydrocephalus put the question beyond doubt.

When the subject is more advanced, the symptoms come on more gradually, with a great disinclination to exertion of every kind; and ultimately sudden death ensues, with convulsions. In examining the bodies of these patients, I have always found more or less effusion on the surface of the brain, and water collected in the ventricles, and along the spinal canal; it is not the number of worms that determines the degree of irritation. *Vermes* are not confined only to children; many adults are infested with them. The *Foulahs,** an African race, are said to be very subject to them, which they attribute to a milk diet. They are generally of the *teres* kind; are lodged near, or in the stomach; and are usually vomited alive. They are fewer in number than in children, and are never so dangerous. I know a negro woman, 60 years of age, who tells me she has been troubled with them all her life time, and generally vomits one three or four times every year. She describes a peculiar sensation in the region of the stomach, which gives her warning of its presence; when she has recourse to a vomit of the expressed juice of the *Bastard Ipecacuanha,* or *Redhead,* which seldom fails to dislodge the creature, and she remains free from it for several months.

After an acute disease, we often find worms discharged; we are not to infer, in every case, that these were the cause of the previous complaint, otherwise we will be much mistaken. It is astonishing what quantities will come away, without any remedy having been taken, and where not the least suspicion had been entertained of their presence. When the sugar-making season has commenced on some estates, I have seen gourds filled with them brought to me, as being passed by children who showed no symptoms of them externally whatsoever. The laxative property of the cane juice before it is made into sugar, of which they swallow an astonishing quantity, causes the discharge of these vermin; and in many examinations of the body, I have been surprised to find masses of them in the intestines of negroes who died from very different causes. This is a singular fact in the history of worms, and shows us, that we are ignorant of the mode in which they often produce such sudden and fatal consequences.

The following contains a few remarks as to the diagnosis and prognosis derived from an extensive series of observations on these complaints.

When purgatives open the bowels freely, and worms are passed at an early period, the patient is safe.

If, after vermifuge medicines, there arises much commotion in the intestines, without any worms being voided, the patient will probably die suddenly, and in convulsions.

When the belly suddenly loses its previous tenseness and heat after the use of purges, and a diarrhœa supervenes without any worms, the patient is in great danger.

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* The Foulahs, or Pholeys, are one of the three principal races which inhabit the interior of Africa; they are characterised, according to Mr Park, by a tawny complexion, soft silky hair, and small pleasing features; and have neither the crisped woolly hair, nor the thick lips and flat noses, of the Mandingo, or proper Negro race. They are found in the vicinity of the Gambia, and form the principal inhabitants of the city of Bondou.—EDITOR.—*Vide Park's Travels, Chap. II. & IV.*

If the marked signs of worms disappear, without any being discharged, a relapse or sudden death is to be expected.

If, after convulsions, worms are voided, there is no danger.

When convulsions have once attacked a patient, they are apt to return; but that does not always indicate the presence of worms.

If anthelmintics stop a fever and diarrhœa from worms, we may expect that many will soon be passed.

When much mucus is discharged without blood, worms soon follow.

Drowsiness succeeding to febrile symptoms is fatal.

Drowsiness after convulsions, without any worms being passed, is fatal.

When purges relieve pain of head and tenseness of the bowels, it is favourable.

If there be voracious appetite, with a heavy sensation at the stomach, it indicates worms lodged near that organ.

Although no worms are passed at the time our remedies are operating, we are not to conceive that we have been wrong in our diagnosis; they often come away a few weeks afterwards.

The treatment may be discussed in a few words. When the symptoms have actually invaded, we are to palliate the most urgent, so as to enable us to attack the exciting cause by means of strong purges; to prevent the generation of worms, or to remove them before they have done mischief, is the great point. Most prudent men who have the charge of negroes, give worm physic regularly, and select those who appear more disposed to generate them, for a more lengthened course. This must vary according to the situation and time of the year.

As to the anthelmintics employed, I believe none deserve that name but such as act mechanically; the cabbage bark, I am convinced, has no pretensions. The inspissated juice of the aloes, I have always preferred in cases of children, to the extent of three drachms, and given as a glyster. It operates effectually in destroying ascarides.

Turpentine and sweet oil, or castor oil, forms an excellent remedy, when the worms are situated near the stomach.

But the most essential piece of advice, is to continue the remedies for a length of time, and vary them in every possible shape. From abandoning these at too early a period, and looking on our opinion as incorrect, thousands meet with an untimely grave.

(To be continued.)

III.

On the Medical and Moral Treatment of Young Women who have swallowed Laudanum in large Quantity, with a design of proving Fatal to Life; illustrated by two Cases successfully treated. By William Howison, M. D., Fellow of the Royal College of Surgeons, Edinburgh, &c. &c.

> Though worse than frenzy could that bosom fill,
> Extreme in love or hate—in good or ill;
> The worst of crimes had left her Woman still.
>
> *Lord Byron's Corsair.*

Case I.—A. B., aged 18 years, the daughter of a shoemaker in town, and servant in a lodging-house,—a girl of a dark complexion, and naturally of a melancholy disposition,—from a disappointment in love affairs, resolved to destroy herself.

For this purpose she arose from bed, on the morning of the 23d of October 1815, about seven o'clock, and went to an apothecary's shop which she found open, and where she purchased a quantity of laudanum, supposed to be from ℥ii to ℥iii, but the exact proportion could never be distinctly ascertained: she then returned home, and went to bed, where she swallowed the laudanum.

She had said the preceding evening, as appeared afterwards, to a neighbour's servant, a companion of her own, that life was a burden to her; that she was resolved not to live longer; and had insinuated, that she intended to terminate her existence by swallowing laudanum.

After swallowing the laudanum, she remained in a state of stupor and insensibility for nearly two hours, without being taken notice of by any individual; there being only, with the exception of herself, an old lady in the house, who had neither suspected, nor had the slightest idea of her intention. The lady having got up at her usual hour, nine o'clock, went into the kitchen, to see what was become of her, and found her in a complete state of insensibility, with her eyes open, &c. Supposing her dead, she immediately alarmed the neighbours living in the same common stair; upon which several persons ran in, amongst others the servant to whom she had said she intended to destroy herself by swallowing laudanum, and who immediately made known the circumstance.

An apothecary was sent for, who came about eleven o'clock. He got her out of bed, with the assistance of the people around her, kept her in a state of forcible agitation by shaking, &c., and attempted to force over her throat a solution of five grains of tartar emetic, which he experienced very great difficulty in doing, as the jaws were so firmly locked together. In about an hour and a half afterwards, they sent to the Royal Infirmary for assistance, at which time I was physician's assistant to that Establishment. As the attending physicians had left the house, and could not be found, I went over to my friend Dr Duncan junior, who, upon learning the circumstance, had the goodness to accompany me to see the unfortunate girl.

Upon entering the apartment we found several people, and the patient supported in the erect posture by two strong men, who were holding her up by the shoulders, with her head hanging lifeless upon her breast, her hair in disorder, her eyes bewildered, and her countenance pale and ghastly. Her limbs being unable to do their duty in supporting her, her body was suspended as it were in the air, with the points of the toes touching the floor. She felt cold and lifeless; and the muscles were in a complete state of relaxation. The pulse was about 90, feeble and irregular; respiration slow and sonorous; her lips and mouth were livid, and considerably swelled, from the violence previously used to force fluids down the throat; and her jaws were firmly clasped together. She appeared completely insensible to every thing passing around, and would not answer questions.

The tartar emetic administered by the apothecary having produced little if any effect, we immediately directed the windows of the apartment to be pulled completely open. We attempted to pour into the patient's stomach, by forcibly opening her mouth, keeping the jaws separate, by means of a piece of wood introduced between the teeth to prevent the tongue from being injured, and partly by one of the nostrils, the other being compressed by the finger, about ℥ii of a saturated solution of sulphate of copper, previously prepared for the purpose; which we succeeded in doing, although with considerable difficulty, and which produced, or was followed by little effect. After preventing the patient from falling into a state of torpor and stupor, which she instantly would have done, by keeping constantly shaking and moving her about, ʒi. of sulphate of zinc, which was sent for, was dissolved in water, and forced into her stomach, and the internal fauces irritated by means of a feather, to promote vomiting. Her countenance soon became more ghastly, and she immediately threw up a quantity of a brownish tinged fluid, smelling strongly of laudanum; after which, she appeared to be considerably relieved.

Dr Duncan being under the necessity of leaving the house upon urgent business, I remained with the patient, and forced into her stomach another ʒss. of sulphate of zinc, dissolved in watergruel. By this time a large quantity of warm water oatmeal-gruel being prepared, according to my directions, and allowed to cool, I kept passing it, by means of a table-spoon, gradually and at intervals, into her stomach, until she had swallowed about two or three mutchkins of it; which produced vomiting repeatedly, and to a considerable extent. This I feel inclined to think it did, merely by distending to an unnatural extent the coats of the stomach. During the greater part of the above period, she was kept in a constant state of motion, by shaking, and moving her through the apartment; as she several times relapsed, notwithstanding all our efforts, into a complete state of stupor.

It was now nearly three o'clock; and the unfortunate girl was so far recovered as to answer questions, although very indistinctly. She appeared sensible of the destitute situation in which she must be left; she could not be expected to meet either with proper accommodation or attention where she was; and as I was averse to leave her in her doubtful condition, I proposed to her relations, who were by this time assembled, to admit her into the Royal Infirmary, which was thankfully agreed to; and she was immediately sent off in a sedan chair, attended by one of them in charge of her, the window of which was kept half open to allow free admission of air, which, along with the motion, I thought would prove beneficial and salutary.

Upon admission into the hospital, she was placed in a closet, which was entirely reserved to her own use, in one of the quietest wards, and intrusted to the charge of two confidential nurses, with strict injunctions to treat her with attention and mildness. As I was not perfectly satisfied that the injurious and acrid contents of her stomach had been completely evacuated, other fifteen grains of sulphate of zinc, dissolved in two pounds of watergruel, were administered, which soon produced copious vomiting. Her stomach being now in a much more sensible state, she was well wrapt up with clothes, as it was a chilly autumn evening, and sent out to the green behind the house, with the two nurses, who were directed to keep her walking about, and in a constant state of motion. By these means, she gradually recovered herself, so much as to articulate distinctly, and even to enter into conversation with her friends; although she still appeared sullen and indifferent to life. Her countenance became more animated and lively, although she still retained to a considerable degree her languid and torpid appearance, and she was able to walk about with little assistance. In about an hour, a basin of warm tea, and a biscuit, were given her, which she took, and from which she felt considerably refreshed. Having remained in the open air till half past five o'clock, when it was becoming dark, she was again brought into the house, and walked about in an empty ward for some time. She threw herself upon the top of the bedclothes; a nurse was appointed to take care, and prevent her from falling asleep.

Hora 8va, *p. m.*—She is now considerably recovered; but still has a great tendency and inclination to sleep. She is walking through the empty ward, supported by the nurse. Skin hot, and covered with perspiration; mouth and lips considerably swollen and painful, in consequence of the violence used in forcing fluids into her stomach; no passage of bowels; she still retains a timid bewildered appearance, and seems suspicious of those around.

℞ Submuriat. hydrarg. gr. vi. Mass. pil. aloet. gr. ix. ft. massula, et divide in pilul. æqual. iii Capiat ii. stat. et i. h. s.

24th.—Mane. Hora, 9 *a. m.* Pills above prescribed have produced no effect; although she took five such yesterday evening, and during the night slept well. Has taken a basin of warm tea, and some bread to breakfast. Appears quite collected, and refreshed.

Accipiat enema domest. statim.

Hora 12 *a. m.*—Visit. (The Visit Reports which now follow, were made by Dr Spens, one of the physicians to the Establishment, and whose assistant I then was.) Has had one stool by the injection, but rather scanty.

℞ Alcohol dilut. ℥ii. aq. fontis ℥iii. syrup ʒii. M. Sumat. ℥ss. subinde.

Habeat jusculi bovini (beef tea) ℔ii. hodie et indies.

Let her have a basin of tea evening and morning.

25th.—One natural stool. Slight headach. Feels pain of breast, situated about the top of the sternum, which follows the course of the œsophagus up to the mouth; pulse 80, of moderate strength; languor considerably less; takes her food.

Contin. medicamenta.

Vespere.—Laventur caput, cervix et brachia aqua tepida c. aceto omni mane et vespere.

26th.—Mane. At ten o'clock this morning, she took a strong convulsive fit, which continued for a quarter of an hour, and gradually went off; during the whole of which time she was insensible to what was passing around; appears weak and faintish.

℞ Tinct. valerian. ammoniat. ℥ii. Sumat ʒi. bis in dies ex aqua.

Hora 12 *a. m.*—Visit. Has had repeated fits since morning, attended with convulsions; tongue clean and moist; no stool.

Habeat q. p. haust. c. ol. ricini ʒvi. Contin. alia.

27th.—Has had two more convulsive fits, which came on without any warning. No headach; pulse natural; tongue clean, and moist; slight uneasiness about the stomach.—Contin. omnia.

Vespere.—This evening, I was informed by the nurse in attendance, that the young man who had been the original cause of her swallowing the laudanum, had been visiting her repeatedly of late. Thinking his presence might be the cause of disturbing, irritating, and bringing on the convulsion fits in her present uncertain state, I gave strict orders that he should not be admitted, until she had perfectly recovered.

29th.—No fit since last report. She appears almost well.

Full diet.

31st.—Has had several fits since last report; but they are feebler, and of shorter duration than before. Pulse natural; tongue clean, and moist.

Habeat pil.l. aloes et assaefœtidae gr. x. ter in dies.

Omittantur alia medicamenta.

November 4th.—Bowels rather costive. Has continued considerably better since last report.

Habt. stat. infus. sennæ ℥iii. et rep. omni bihorio, ad ℥ii. donec alvus respond.

6th.—Several fits, which are milder, and of shorter duration. Infusion operated several times on the 4th; affected since last report with a considerable degree of headach; pulse natural; appetite good.

Habt. stat. pulv. jalapæ. gr. xv. Calomel gr. v. M. et ft. pulv.

Continuantur alia.

7th.—Three stools from the physic; has had several fits; headach continues.

Applicent. hirudines vi. fronti. Contin. pil.l. aloes et assaefœt. ut antea. Habeat bol. camphorat. 1. bis in dies.

8th.—At present in a state of insensibility. Four fits, in general attended with convulsions. Pulse 74, of moderate strength; two stools; appetite good; headach relieved.

℞ Aqua menth. pip. ℥i. Tinct. assaefœtidae ʒss. M. ft. haust.
q. p. sumend. Contin. boli camphorat.

9th.—Fit continued nearly two hours; and she had a similar one during the night. Affected with pain about the bottom of the stomach; bowels open; pulse natural; no headach.

Applicet. vesicat. imo sterni. Continuantur alia.

12th.—Habeat solut. assaefœtidae ℥ss. ter in dies.

16th.—For several days past has been almost well, and has had only a very slight return of fits, which appear to be gradually wearing away; desires to go home.

Dismissed cured.

Receipts of the Infirmary Pharmacopœia included in the above case.

1st.—Bolus Camphoratus.

Camphoræ. gr. vi.
℞ Conserv. rosæ Gallicæ. gr. x.

Camphorae ope pauxilli alcoholis fortioris in pulverem tritae adde conservam et fiat bolus.

2d.—Solutio Assaefœtidae.

℞ Gummi resinæ ferulæ assaefœtidae. ʒii.
Aq. fervidae. ℥xii. Solve.

Case II.—June 29th, 1816.—Elizabeth B., aged 17 years, the daughter of a master chimney-sweeper in town,—a delicate, weakly girl, of an irritable constitution, and endowed with acute and strong feelings of mind,—having been disappointed in love matters, and cruelly and unjustly treated by the object of her affections, resolved, on the night of the 28th June 1816, to destroy herself by taking laudanum. For this purpose she procured a quantity of it, and was supposed to have swallowed from one to two ounces; but the exact proportion could never be ascertained. In a short time, it was followed by stupor, insensibility, convulsions, &c. The muscles of her body became soft and relaxed, her breathing stertorous, her countenance pale and ghastly.

She remained in the above described state of insensibility and torpor for two hours previous to being discovered by her relations. The alarm was given, and medical assistance immediately sent for. Mr William Wood came, but late in the evening. With considerable difficulty, under his directions, they raised her up, succeeded in forcing an emetic, in considerable quantity, into her stomach, which at last produced nausea, and copious vomiting. She was kept in a continued state of motion during the night, by shaking and moving her about the apartment. By these means she became, in the course of a few hours, gradually more and more sensible, so as to know what was passing around. Towards morning she was allowed to sleep for some time, carefully watched by the relations.

When Mr Wood saw her early next morning, she was still in a state of stupor and confusion. Vomiting was again produced to a considerable extent by emetics, still introduced with difficulty into her stomach. Various purgative medicines had been administered since her situation was first discovered, but had produced no operation. As it was out of Mr Wood's power to pay her the constant attention and watching on which the urgency of her case required;—from her situation in life, she could not command the requisite medicines and advice,—and as it was taking her from a crowded, ill-ventilated house, into free air, he recommended strongly her removal to the Royal Infirmary, which was, after some difficulty, agreed to by herself and relations. Application was accordingly made to Dr Spens, who agreed at once to her being received into the house. With his permission, I prepared a closet off one of the quietest wards, which was entirely reserved for her use, with a day and night nurse to be in attendance. Being naturally interested in the case, I kept house, in expectation of her arrival.

About 3 o'clock in the afternoon, she was brought in a sedan chair, at which time she was still in a state of stupor from the effects of the laudanum; her countenance pale and ghastly, her eyes heavy and languid, her face full, and the skin of it having a smooth glassy appearance; her lips were swelled and painful, from the force which had been used to make her swallow. The muscles, were in a complete state of relaxation; she had lost the power over them; and was so feeble as to be unable to support herself in the erect position without assistance. The skin over her body felt hot, feverish, and was covered with a clammy perspiration. Pulse was 94, full, strong, but irregular; she kept her jaws locked together, and appeared jealous and afraid of the people around. Every few minutes she fell into a state of stupor and sleep, from which she could only be roused by being repeatedly moved or shaken. She would give no answer to questions put to her, which appeared to proceed much more from the torpid and insensible state in which she was, than from obstinacy or any other cause.

Upon admission into the Infirmary, her mouth was with some difficulty opened, and about ℔ ii. of watergruel, in which was dissolved a small quantity of sulphate of zinc to assist its emetic power, gradually introduced into her stomach, with the assistance of a tablespoon. During this time, she was kept in a constant state of motion, to prevent her from sleeping. By these means, with the assistance of a feather to irritate the fauces, repeated and plentiful vomiting was soon produced.

I was informed that she had been made to vomit frequently before admission into the hospital. What now came off her stomach, appeared to be returned nearly in the same state in which it was swallowed; and, from having been kept walking through the ward for nearly two hours, supported by two nurses, she had so far regained her natural senses, as to answer questions with tolerable accuracy, and to appear much more refreshed and sensible. I judged that the soporific contents of her stomach had by this time been completely evacuated; and that she now merely laboured under the effects produced by the laudanum upon her system in general.

She was now sent to the green behind the house, being well wrapt up with clothes, and was kept walking upon the gravel footpath, supported by a nurse, until six o'clock, when she drank a large basin of warm tea, and eat part of a wine biscuit. By these means, and by the bracing invigorating effects of the cool atmospherical air at the above mentioned season of the year, she became much more sensible and refreshed, her countenance began to assume a more healthy appearance, and she was able to walk about with little assistance.

She returned to the ward about 6 o'clock; ℥iv. of infusion of senna was administered to evacuate the bowels, which had not been done since she swallowed the laudanum, although different purgatives, as has been already mentioned, had been given to her. She walked about for several hours more, when she went to bed, with a nurse appointed to take care of her, and prevent her from sleeping.

Hora 12 *p. m.*—No effect from infusion of senna. Is still in a torpid state, accompanied with great inclination to sleep; but she is easily roused from it. Countenance in general much more natural; skin still hot, and covered with moisture; pulse 96, feeble; answers distinctly questions put to her.

> Injiciat. enema domest. stat. Habeat juscul. bovini (strong beef-tea) ℔ii. statim. Capiat pauxillum subinde.

30th.—Mane. Injection given last night produced a very copious stool. Has enjoyed, during the night, several hours of refreshing sleep; and has taken tea, with a biscuit, for breakfast this morning.

N. B. The Visit Reports which follow upon this case, were made by Dr Spens, junior physician to the Establishment.

Hora 12 *a. m.*—Visit. Complains of headach, but of no pain any where else. Is still very torpid, with great tendency to sleep, but is easily roused; complains of urgent thirst; tongue very red at the apex, as also at the sides; pulse 84, feeble.

> Let her have a basin of tea every evening and morning. Contin. juscul. bovin. fort. (strong beef-tea) ut antea.

31st.—Was awake all yesterday afternoon; asleep at present; one stool; takes her food.

June 1st.—Considerable headach; pulse under 80; has taken no food to-day: bowels rather slow.

> Habt. mist. salin. ammoniat. ℥i. 2d qq. hora. Bol. c. pulv. jalapæ comp. gr. lxx. Contin. alia.

2d.—No particular complaint. Bowels slow.

> Habeat infus. sennæ ℥iv. statim. Injiciat. enema domest. vespere si opus sit. Contin. alia.

4th.—Infusion of senna operated several times. Is now free from complaint, and wishes to return home. Dismissed cured.

Having detailed the two preceding cases in illustration of my present subject, viz. remarks upon the moral and medical treatment of females who have swallowed laudanum in large quantity, with the design of proving fatal to life, I shall now proceed to its consideration.

1st, *The Medical Treatment.*—When it has been distinctly ascertained, which for the most part can easily be done, by the previous confession of the patient, by the examination of the people around, by the general symptoms and appearance of the individual, or by all these, along with other collateral evidence taken together, that a female has swallowed laudanum in large quantity, the first thing to be done is immediately to rouse her from the torpor and stupor which are the natural consequences, and to prevent her, if not too late, from falling into that state of insensibility and sleep which generally would, sooner or later, prove fatal. To accomplish this purpose, she ought to be forcibly removed from bed, to which a person under the above circumstances generally betakes herself, and taken into a large well-aired apartment, the windows of which are thrown open, or if during summer, and a convenient retired situation, as a garden, park, &c. offers itself, into the open air, where she should be kept in a constant state of action or motion betwixt two strong people, by gently shaking or dragging, to prevent her from falling asleep. An emetic of sulphate of zinc, sulphate of copper, &c. in a large dose, dissolved in luke-warm water, or, what is preferable, in luke-warm watergruel, made of oatmeal, should be forced as gently as possible into her stomach, by the mouth or nostrils; and the internal fauces may be tickled with a feather, to promote the vomiting. In this way, vomiting is generally at length induced; if it should not, an additional quantity of the emetic must be given. I now recommend luke-warm gruel, thin barley-water, &c. in large quantity; say from one to two pounds, to be passed gradually into the stomach. This acts in a very advantageous manner. By diluting the acrid contents of the stomach, and by keeping its coats in a state of over-distention, it produces and keeps up the vomiting. This plan was followed in both of the cases already detailed; and I feel convinced that it produced most beneficial effects. Being absorbed by the vessels of the stomach, and carried into the system, might it not also tend to dilute and mitigate the future narcotic operation of the laudanum? When, by the means now mentioned, the narcotic contents of the stomach have been completely evacuated, which may be judged of by the liquids taken being returned in the same uncontaminated state, and the individual has recovered herself, so as to answer questions, to move about with assistance, &c. a basin of warm tea and a biscuit may be given to her with evident advantage, marked by its refreshing invigorating effect. After this, she may be sent out to the open air, if it has not been done before, well wrapt up, and be kept in a constant state of motion or exercise by slow walking, supported by two strong people, for several hours.

Under the above described treatment, it is wonderful in what a short space of time the individual, from a state I may say approaching to death, comes round to that of complete sensibility. She recovers herself very gradually; becomes quite recollected, so as distinctly to answer questions; and is enabled, in the course of several hours, to walk with little assistance. I am perfectly convinced, that nothing tends so much to produce this favourable change, or is so beneficial to a person labouring under the above mentioned symptoms, from swallowing laudanum, as a free and continued exposure to pure and cool air. It invigorates and strengthens the impaired constitution; it renews the torpid faculties of mind and body; it accelerates the healthy action of the lungs; and it produces a tendency to that refreshing state of sleep, which renews and invigorates the debilitated system.

When the patient has been kept in a state of exercise in the open air for several hours, and again recovered distinctly her faculties, she may be brought into the house, where the after treatment is to be put in force, one of her relations, or a confidential nurse, being in constant attendance, to prevent her from again returning to the state of torpor and stupor.

Laudanum swallowed in large quantity, it is well known, exerts a remarkable effect, in producing a constipated state of the bowels, with diminished action of the whole intestinal tube; a common emollient enema may therefore be now given, to evacuate the bowels and renew their natural healthy action. It appears to me to be more proper and more beneficial to give an emollient enema at once in such cases, (viz. where laudanum has been taken in large quantity), without having recourse to purgative medicines of any description. It possesses the advantage, that it can be administered without producing uneasiness or irritation; and it may prove of benefit from its gently stimulating, and at the same time soothing action, upon the alimentary canal; whereas purgative medicines of any description, given by the mouth, must be disagreeable to the patient. They irritate, to a considerable degree, the lips, œsophagus and stomach, already in a tender state, from the effects of the laudanum, the violence which has been used, and the acrid nature of the substances which have been forced into them. The success to be expected from the uncertainty of their operation is doubtful; and we may be obliged, at length, as in the preceding cases, to have recourse to an enema, as the only resource to fulfil our intentions. If the *enema domesticum* should prove unsuccessful in cases of swallowing laudanum, I should recommend the *enema purgans* to evacuate the intestinal canal. I have had no opportunity of trying this as yet.

If any purgative medicine, under the above circumstances, were advisable, I should prefer the *infus. sennae* to all others. Speaking of this medicine, in a general point of view, I have used it repeatedly, both in hospital and private practice, for these eight years past, and have never yet found it to fail. I have found it successful, where a great variety of other purgatives, as castor oil, jalap, &c. have proved unsuccessful, or been rejected from the stomach; and it appears to agree with all sorts of patients.

If the individual, after the above described treatment has been put in force, appears weak and feeble, a little wine, or perhaps, what is better, a little strong beef-tea, may be given to her. She may be permitted to use stimulants to the nostrils at times, viz. carbonate of ammonia, aromatic vinegar, &c. and be allowed to go to bed at her usual hour for so doing, a sick-nurse being appointed to sit up and watch. If her feet, or inferior extremities in general, feel cold, they may be wrapt up in flannel previously heated, and warm irons, bricks, or bottles of warm water placed near them.

With regard to the after treatment of the patient, it must depend upon, and be regulated by symptoms, as they present themselves. The general debility which naturally follows, and is produced by so much suffering and exertion, is to be obviated and removed by strengthening medicines and nourishing diet; the bowels are to be kept regularly open by gentle laxatives; the spirits of the individual are to be supported and encouraged by every means in our power; her apartment must be kept well-aired and ventilated, which proves of the greatest consequence, refreshing and invigorating the debilitated powers of life; and, along with these, she ought to take repeated walks during the day, when the weather is fine, in the open air, until she recovers her usual and natural state of health.

For those fits or convulsions which in general succeed to, or are produced by laudanum taken into the animal economy in large quantity, which generally make their appearance the first or second day from the swallowing of the laudanum, and which are particularly well marked, distinct, and lasting in young females, the best remedy appears to me to be the *tinctura valerianae ammoniata*, or *tinctura assaefoetidae*, particularly the former. These convulsive fits were very distinct and well marked in the two preceding cases. They became milder, and gradually disappeared under the use of the above-mentioned tinctures.

2dly, *The Moral Treatment.*—Having concluded my remarks upon the medical treatment of individuals who have swallowed laudanum in large quantity, with the design of proving fatal to life, I now proceed to consider the practice to be put in force, in a moral point of view, towards those unfortunate and determined individuals, young females (and it is to this class of society this nefarious, and, I feel sorry to say, too frequent and increasing practice is confined), who, from a strong sense of delicacy, honour, or mistaken shame,—from having their feelings and happiness injured and insulted by the unmannerly or brutal conduct of that part of the community whose duty it is to afford them protection and advice,—have been reduced to the painful and disagreeable necessity of attempting to destroy their lives by swallowing laudanum.

When an individual, under the circumstances now alluded to, has swallowed laudanum with the design of proving fatal to life, from any cause, but particularly from disappointment in the affairs of love, I am perfectly satisfied and convinced, and so must every reflecting person who has seen such instances occur, that the state of agitation and feeling of mind produced by having committed an action so unpardonable and disgraceful, before the eyes of the world and her relations, must not only tend to produce many of the bad consequences which follow, but will assist greatly in aggravating and retarding the future recovery.

That the above mentioned circumstances, when occurring in a public institution or hospital, where there are a great number of attendants and patients in a manner idle, having little or nothing to occupy their spare hours and conversation, all anxious to see an individual who has been so resolute as to commit such an action, and to learn her history, as soon as the news have spread through the establishment, which they soon do, and when the patient is exposed to be looked at, and questioned by a number of young and thoughtless students, must be, by these means, greatly increased and aggravated, appears to me to be obvious, and evident to every reflecting mind. It is certainly, therefore, preferable and desirable that the unfortunate girl should be as quiet and retired as possible; that she should be secluded from the public eye; and that her history, or the causes which induced her to commit such an act, should be allowed to go into oblivion. It has, fortunately, not fallen to my lot to see individuals belonging to the higher ranks of life under these circumstances; but it has been so to see those of the lower orders. That as members of society, as human intellectual beings, their feelings are equally strong, sensible and irritable; and that they are equally, if not more so, from their unprotected situation in life, from being destitute of powerful friends or relations to interest themselves in their cause, &c. entitled to attention and commiseration, I think no one for a moment will hesitate in admitting.

Of all places, under these circumstances, a public hospital is worst adapted, and certainly the most improper; but, when compelled by necessity to have recourse to it, we must use the means in our power to obviate these inconveniences, and which will conduce to the comfort or recovery of the individual.

When the individual belongs to that rank of society that, in order to procure her the necessary attendance, medicines and advice, as also the various little comforts which are necessary to promote and hasten her recovery to the state of health, it becomes absolutely necessary to remove her to a public institution or hospital, it ought to be conducted in as private and gentle a manner as possible. For this purpose, she should be placed in a sedan chair, the windows of which are kept partly open, to allow the free admission of pure atmospherical air, which will tend greatly to refresh and invigorate her. One of her friends or relations, in whom she has most confidence, should accompany her, walking by the side of the chair; and the particulars of her case should be concealed, if possible, from the men who carry her. When she arrives at the hospital, a private room or closet, with which public institutions are generally provided, should be appropriated entirely to her use; she ought there to be intrusted to the charge of two confidential nurses (a day and night one), with strict orders to treat her with every kindness and attention; and to keep, if possible, the particulars of her case secret from the other inmates of the establishment.

During the time she remains in the hospital, no individual should have admittance into the apartment, with the exception of those absolutely necessary about her person, and one or two relations to amuse, and make the time pass pleasantly away. The case should not be recorded until her dismissal upon the hospital records; and no student ought to have access during that period. It is, I hope, unnecessary for me to say any thing here regarding the placing of a patient of this description in an open clinical ward. I do not think it possible that any medical man would be so destitute of common feeling and humanity, as to allow such an intention to occupy for a moment his mind.

The person who has been the cruel, although in some cases the innocent, cause of the young woman attempting to destroy herself by swallowing laudanum, ought, under no pretence, to have admittance to where she is, unless he is resolved, or has made up his mind, to act in a candid and honourable manner towards his unfortunate victim; otherwise, it retards and ruins the future recovery, bringing on a state of debility, of which she may never completely get the better. In the first of the cases already detailed, from this cause the patient relapsed several times into her former state of stupor, which was succeeded by a degree of weakness and debility, from which she never actually recovered to the period that she left the hospital, and which might remain during the greater part of her life.

What has now been recommended may appear, to the superficial reader, particular, severe, and unnecessary; but I can declare, from what I have witnessed, that it is not so; and I flatter myself that every practical medical man, who has been in the habit of treating similar cases, will bear me out in my statement. I have seen repeatedly since, and it occurred to a considerable degree in both the cases already detailed, that the individuals, after once recovering (the greatest care and attention having been paid) from that state of stupor and torpor produced by the laudanum, again relapsed some time afterwards into their former condition; and this sudden change could be attributed to nothing but the anxiety of mind, and the shock caused by being exposed to the looks, questions, &c. of the inmates belonging to the hospital, and to the inquisitive examination of a set of students.

When the unfortunate individual is in a situation of life to admit of it,—when she belongs to the better ranks of society, and can command the necessary attendance and remedies,—a private house, or remaining at home, is undoubtedly the most proper situation for a person under these circumstances. There, every secrecy can be observed, every comfort and indulgence procured. Her anxiety can be soothed and alleviated by the constant presence and attention of her friends and relations; her mind can be amused; and by those means, she may gradually, or soon, be brought round to her usual and accustomed health.

With regard to the conduct to be put in force, and the behaviour to be observed in a moral point of view, towards the patient, whether it occurs in hospital, or in private practice, it must be the strict duty of every individual connected with the sufferer, whether as relation, adviser, or medical attendant, to do every thing in his power to calm and to sooth the injured feelings of a person who has committed such an act,—to attempt to make the past go into oblivion, and to present and hold out a favourable idea of what is to come. And surely there does not exist a human being, who would so far degrade himself as to irritate, vex, or treat with indifference, either by his behaviour, or by his language, the delicate and injured sensibility of a young woman, whose feelings and principles have been already so far overcome (perhaps by the unmanly and treacherous conduct of some one in whom she had generously or thoughtlessly placed confidence), as deliberately and intentionally to attempt to destroy that life which must be so dear to her, and the protection and preservation of which was intrusted to her by the Creator.

IV.

Observations and Cases, illustrative of the Pathology and Treatment of Necrosis. By ROBERT KNOX, M.D., Member of the Wernerian Natural History Society.

It has been long known, that when a bone dies, or becomes necrosed, a process is begun by the constitution to repair the loss; new bone is formed, and deposited in the manner best calculated to support the limb or parts diseased; and, when the bones of an extremity are implicated in the disorder, the limb preserves its strength, and, though somewhat unshapely, is sufficient for the ordinary purposes of locomotion. This very beautiful and wonderful process, viz. the regeneration of bone, has for many years engaged the attention of pathologists and physiologists. Theories sufficiently ingenious have been devised, and, to confirm these, numerous experiments performed on living animals,—man himself not escaping. Some of the works written on necrosis and regenerated bone, I know only by report, and at second-hand; but the general conclusion from all has uniformly seemed to be, that the principal agent employed by nature in the formation of new bone, is the periosteum,—at least this was the opinion of all the practical surgeons (and they are not few) with whom I have had an opportunity of conversing on the subject. It has occasionally happened, that their notions were not exceedingly clear; some fancying that the periosteum, in cases of necrosis, is converted into a large compact osseous case; others entertaining similar opinions, though not so coarsely expressed. The process is thus described by a very ingenious author. "Necrosis is generally the result of disease in the soft parts; and, where the necrosed portion is of considerable extent, especially where the affection takes place in a cylindrical bone, it gives rise to a carious action in the periosteum. A degree of excitement arises, producing a secretion of ossific matter, which is deposited in the cellular tissue of the membrane; and, as the quantity of ossific matter increases, the cellular texture in which it was laid is progressively removed by absorption; so that, after some time, there is the appearance of a strong and compact frame-work of new bone, more or less completely enveloping the old bone."

A modification of this opinion has been adopted and well defended by others. The periosteum, they observe, cannot be the organ for the secretion of new bone, in cases where the periosteum has been removed. The objection is unanswerable. They conclude, therefore, that the whole of the soft parts around the bone, contribute to the formation of new ossific matter; amongst which it is evident they must include the periosteum, when that membrane is present.

Early in 1814, I began to consider these opinions as untenable: the formation of new osseous matter in cases of necrosis, compound fracture and caries, did not seem to be connected with the periosteum or soft parts, in those cases which came under my observation; and I remarked, in one very interesting case of hip disease, in which the *trochanter major* was the only part affected with *caries*, that nature had attempted repairing the injury done the bone, though no *sequestrum* or dead portion existed, by a secretion of new ossific matter around the circumference of the ulcer in the bone, which new osseous matter was evidently formed by the vessels of the old bone, the periosteum remaining perfectly sound and unchanged. It was not, however, till the winter of 1815, that I perceived fully the inaccuracies which had crept into the writings of authors on necrosis, and on the regeneration of bone, and that I formed the following opinions, which I shall now sketch very briefly.

Necrosis, or the death of a bone, may arise from a variety of causes, and may be complicated with other diseases and conditions of the part affected, rendering the process of the formation of new bone obscure and difficult to be understood. The simplest case, perhaps, is the death of the shaft of a cylindrical or long bone, either in whole or part, occasioned by a blow.

Case I.—I was requested to examine the leg of a boy who had been struck about two years before on the spine of the tibia, by a stone thrown at him with some force. At the time I saw him, he ran about as if nothing ailed him; the leg was swelled, and purulent matter flowed out in abundance by three fistulous orifices; these led to a *sequestrum* of considerable length. The disease could be traced directly to the blow, and the leg, indeed, had never been well since that period; he had preserved his health, however, and been always able to run about without the aid of crutches; circumstances which seldom happen to those who have enjoyed the benefit of hospital air and surgical treatment. I ascertained that the bone had never been fractured.

In such cases, and I have seen several, a portion of bone only is dead; the external layers of the old bone become vascular, spongy, and full of holes, for the transmission of vessels; new osseous matter is deposited in the interstices; the whole bone becomes much thickened, and occasionally heavy and compact. This progress of regeneration has been well described by Leveillé, who endeavoured, some years ago, to extend the doctrine to all cases of necrosis: it is merely a thickening of the old bone. If examined in a recent state, the periosteum will be found very vascular and pulpy, but neither thickened nor ossified; and, when the disease has ceased, or the cause of irritation been removed, the membrane recovers entirely its natural texture. Yet I have seen specimens of this description (and they are very common in museums) described as belonging to cases in which the entire regeneration of bone had taken place; and as proofs of the conversion of periosteum into an osseous case, sometimes equalling half an inch in thickness!

When the whole shaft of a bone dies, as in the *femur* or *os humeri*, the process set up by nature is still of the same description, differing in situation. New bone is formed by the extremities of the old bone, and commences at these extremities, shooting downwards and upwards, to form a case, which, in a few rare favourable instances, at last entirely envelopes the shaft of the old or dead portion of the bone. When a portion only of the shaft is dead, the formation of new bone commences at the nearest healthy point, wherever that may be. The cause of the formation of new bone is the presence of the necrosed portion, though the same effect may be produced by an ulcer in the bone, by the presence of any solid extraneous body, or of some other source of irritation. Hence, if, by the unhappy interference of surgical art, the necrosed portion of bone (in cases wherein the shaft has died throughout its whole thickness) be prematurely removed, or much of the new formed bone be destroyed in awkward attempts to accomplish the same object, the process for regenerating bone will cease, and amputation become indispensable, in order to save the life of the patient. I shall afterwards endeavour to show, that, generally, when an external layer or piece of bone has died, it ought to be early removed; that when an internal portion of bone has become necrosed, it ought to be taken away by an operation, whenever it shall have become a source of much irritation to the patient, or *whenever it can be readily got at*; but the treatment, in cases where the shaft of a bone has died throughout its whole thickness, will be such as has already been described.

But this process of the regeneration of bone being slow, and often defective towards the middle, even under the most approved treatment, the shaft of the bone is not unfrequently detached from its extremities; and spontaneous fracture happening, amputation becomes necessary.

CASE II.—JAMES MACDONNELL, æt. 16., had his thigh amputated at the *trochanter major* in the winter of 1814–15, for a necrosis of the *os femoris*. The state of the parts found, on examination of the limb, was as follows:—The dead part was a portion of the whole shaft, four or five inches long, lying loose in a large cavity filled with pus, and projecting by its lower end through the skin. The new bony case was imperfect, forming about half a cylinder corresponding to the outer and back part of the limb; so that on the anterior and inner aspect, the *sequestra* were only covered by the soft parts. The new bony case was continued from the upper and lower ends of the old bone, which were sound; but these upper and lower portions were joined only by soft parts, the deposition of new bone not being complete in the middle of the limb. Hence the limb, which had retained its natural length so long as the *sequestra* remained connected to the sound ends of the old bone, became so remarkably shortened as soon as the absorbents had detached this dead piece, in consequence of the retraction of the inferior portion, now unconnected with the superior, except by soft parts.

Precisely similar must have been the case in two very beautiful preparations, now in the possession of Mr Russell of Edinburgh. In these preparations, the new bone may be seen shooting downwards and upwards from the extremities of the old one, and endeavouring to form a case or sheath for the dead portion of bone, which, in these, is composed of the whole shaft of the bone. The process is also very finely illustrated, by a preparation in the possession of Dr Barclay of Edinburgh.

Not unfrequently these different modes of regenerating bone exist together in the same limb, *i. e.* wherever the shaft of the bone has died throughout its whole thickness, new bone shoots from the old in irregular nodules and bridges, or arches are formed, connecting together the nearest points of sound bone, and enclosing the necrosed portion or portions in a sort of cavity. At other places, where the bone has not died throughout its whole thickness, the remaining sound bone becomes very vascular, spongy and thickened, acquiring sufficient strength to support the limb, and not unfrequently depositing new ossific matter, which, projecting forward, ultimately encloses the portion of bone which has become necrosed.

In gunshot necrosis, or the death of a bone from gunshot wounds, the formation of new ossific matter is generally complicated, and the regeneration of new bone is often affected by circumstances which do not exist in cases of simple necrosis. When a bone has been struck by a musket ball, or other hard body projected by gunpowder, death of the bone struck will, to a certain extent, take place. This, however, must not be considered as an invariable sequence, for cylindrical bones are often struck by musket balls, without being either fractured or killed; nor does death of the bone inevitably happen, though the individual struck be close to the mouth of the musquet fired at him.

Case III.—M. J. a private in the ——— regiment of infantry, whilst on patrole (a service he did not much like), was supposed to have fired a ball through his left hand, by placing the palm of the hand on the muzzle of the gun. He was carried to the nearest military station and I saw him a few hours afterwards. The ball in its passage, had shattered the metacarpal bones of the middle and fore fingers; many splinters lay exposed on the back of the hand, but still adhering more or less to the surrounding soft parts, and to each other. The laceration of the skin and muscles was great, and the bleeding had been considerable. In such cases, it has been recommended "to enlarge the wounds, and to remove the broken pieces of bone." I followed an opposite treatment with very marked success. After removing a few splinters not larger than pin-heads, which lay on the very surface of the wound made by the exit of the ball, the constant application of cloths dipt in cold water was ordered, and persisted in for three days; after which a slight suppuration made its appearance, the wounds were in a few days healed up. The man retained the use of his hand; nor were there even any dead pieces of bone discharged, nor did any untoward symptom occur throughout the cure.

The case of A. B. of the same regiment was not so fortunate. He was a young man of a healthy constitution, and had the character of a good soldier. A musquet ball was accidentally fired through his hand by another person; he had no medical attendant for about thirty-six hours; warm poultices, the very bane of surgery, were applied uninterruptedly for some weeks, and I saw him, for the first time, five weeks after receiving the wound, with a swollen hand and arm, suppurating wounds, diseased bones, and hectic fever. My opinion was asked regarding the propriety of amputating the hand, to which, however, I refused my assent.

When a musket ball has struck and fractured a long bone, and the removal of the limb shall have been determined on, the bone ought to be sawn as high up as possible, since we know not to what extent the life of the bone may have been destroyed by the shock of the ball. Primary amputations seem to me calculated to improve the chance of the patient; since experience shows, that, when all sources of irritation are removed by the amputation of the limb, a bone which, under other circumstances, would have fallen into disease, and become necrosed in the portion which remained between the amputated point and head of the bone, may recover.

CASE IV.—A. C. of the —— regiment of foot, was wounded on the 18th June 1815 by a musket ball, which entered on the inner part of the internal hamstring, about two inches above the knee, and having fractured the bone, as was supposed, remained lodged in it. A small portion of ball came away at Antwerp, and others long afterwards at Yarmouth. In January 1817, it became necessary to remove the limb, which was accordingly done on the 20th. He died on the 8th February, apparently completely exhausted. The bone was sawn through a little below the trochanter. On examination of the limb, the ball was found lodged about an inch above the condyles; the shaft of the femur was necrosed internally to within an inch of the trochanter minor; the contained *sequestrum* was large, but was evidently not composed of the entire shaft of the bone; several *cloacæ* existed, all of which were lined by a membrane greatly resembling periosteum. This membrane was very little thickened, though vascular; the deposition of new bone along the femur was very considerable; and the whole appearances greatly resembled a common case of necrosis.

We have, in the above case, an admirable illustration of the advantages which primary amputation possesses over secondary, even in cases where no fracture of the bone existed, and where the mischief done in other respects to the limb was inconsiderable.

In general, when a long bone has been fractured by a musket ball, and it has been resolved to attempt saving the limb, the splinters easily got at, and other extraneous matters, as clothes, &c., ought to be removed; the ball itself, if possible, extracted; and means taken to subdue the inflammation, which will certainly follow. After a time, new osseous matter is secreted, shooting forwards from the sound portions of bone, enveloping the fractured and necrosed portions in a case of new bone, possessing a density and extent proportioned to the original injury; the necrosed portions of bone are now enclosed by new osseous matter; the thigh is much shortened, and swollen, and firm; the large internal diseased cavity, containing the necrosed portions of bone, becomes fistulous, and is lined by a membrane resembling that of incurable or intractable sinuses in the soft parts; the necrosed portions of bone excite frequent inflammation, terminating in abscesses; whilst, in consequence of the continued irritation, a new osseous deposite is formed, occasionally of immense magnitude. Previous to this, the patient has suffered much; and he is generally at last cut off, either by some unlucky operation, by being thrown into an unhealthy hospital, or his constitution sinks from weakness and distress.

Necrosis not unfrequently attacks the bone in cases of gunshot fractures, though amputation has been performed by a dexterous operator.

Case V.—Captain B—— residing in the south of England, requested my advice regarding a discharge of purulent matter from the thigh, which had been amputated about two years before. He was originally struck by a ball near the knee-joint, in the action of Salamanca; and amputation was performed soon after, a few inches above the site of the wound. The operator was perhaps the most expert at that time to be found in the British service; the wound healed well, but could not be brought to a perfect cure; it remained open, discharging purulent matter, and giving the patient great uneasiness. A second amputation was performed, and afterwards, for similar reasons, a third; yet in 1816 the stump continued open.

I am inclined to think that the bone had originally been killed by the shock of the ball, and died probably throughout two-thirds of its shaft. This might not be apparent during these successive operations; for the external lamina of bone, at the place where the saw is applied, are seldom dead, or even diseased. I shall now briefly enumerate the more common causes of necrosis in gunshot fractures, and in cases connected with military practice. These are,

1st, The amputation of the limb below the point at which the shock of the ball has affected the bone.

Case VI.—W. S. of the hussars was wounded on the 18th June 1815, by a cannon shot, which destroyed the knee-joint. He suffered amputation on the 20th; the bone was sawn through about four inches above the knee; the stump remained open. In the beginning of 1817, a long exfoliation or sequestrum came away from the face of the stump, which still remained open, with a discharge of purulent matter. Such cases are very common.

2d, Death of the bone from the shock of the ball, with or without fracture, as in the case of A. C. already described, and in the following.

Case VII.—J. H. —— of an infantry regiment, was wounded at Orthez by a musket ball, which entered the right thigh, a little above its middle. The ball lodged in the limb, but was cut out, about three months afterwards, at the distance of a few inches above the seat of the original wound. Several pieces of bone were extracted about July 1816; but he died exhausted in January 1817. On examination, the *os femoris* was found necrosed quite to the trochanters of the bone, from within an inch of the condyles; the periosteum was vascular, and somewhat thickened; some deposition of new bone had taken place. Numerous *cloacæ* led into the interior of the bone, where a very long and complete sequestrum existed.

Necrosis will more readily follow, should the ball be allowed to remain imbedded in the bone. Amputations very high in the limb are frequently necessitated, in such cases, by the long continuance of the disease, and the little hopes of recovering.

3d, Sloughing sores, as in hospital gangrene;—these require little illustration. They destroy the integuments and soft parts; and, ultimately laying bare the bone, it also perishes, giving rise to successive amputations on the same limb.

Case VIII.—W. S. ——— of the —— regiment of infantry, at Pampeluna, on 26th July 1813 received a gun-shot wound in the ankle joint; gangrene seized the limb eight months afterwards at Passages, where it became necessary to amputate above the knee-joint. He was afterwards placed in Plymouth Hospital, the stump being open all the time. Whilst in the above hospital, a large internal exfoliation or *sequestrum* was extracted. The stump, notwithstanding, did not heal; and it was deemed necessary to amputate the limb higher up. The operation was performed on 25th January 1817, and the stump was nearly well in the month of March 1817. On examination, the portion of bone amputated was found much diseased in structure, but there was no necrosed portion remaining. The periosteum was thickened and vascular; the upper portion of bone much increased in size, apparently from the deposition of new bone within its own substance; the number of *foramina* indicated its great vascularity. An extensive caries was found about the middle of this portion of bone. No ossification of the periosteum was perceptible.

4th, Protrusion of the bone from great retraction of the muscles and skin, after amputation, from any cause whatever. The following case is selected from the Memoirs of the French Academy, in illustration of the above cause assigned for necrosis, such instances being rarely met with in British practice.

Case IX.—" Un soldat reçut un coup de feu qui traversoit l'articulation du genou. Un mois ou six semaines après sa blessure, la malade fut en état d'être transporté a l'Hopital de Gard. Une longue diette, une suppuration abondante, et la formation de plusieurs dépôts considerables, avoient epuisé le malade. M. Attouel lui coupât la cuisse en deux temps; et malgré toutes les precautions qu'il avoit prises, l'os fit une saillie considerable. M. Attouel ne crut pas devoir retrancher cette portion d'os avec la scie. Il borna les chairs au niveau de la cicatrice, qui commencoit à se faire, en appliquant sur l'os des plumasseaux trempés dans l'eau mercurielle, avec l'attention de garantir les environs, de l'action de ce medicament. L'usage de cette eau continuée pendant quelques jours, fit assez d'effet pour consumer l'os dans toutes sa circonference à la profondeur de deux on trois lignes. Il ebranloit légèrement la piéce de temps en temps; elle se separa entièrement vers la cinquantieme jours de l'operation; et la guérison parfaite suivit de près la chute de cette portion d'os."

The French surgeon blames the application of caustic for the peculiar form assumed by the *sequestrum*; but no sufficient reason is assigned for such an opinion. I shall afterwards endeavour to show, that *sequestra*, or exfoliations forming in stumps, generally affect the forms already alluded to, whatever may have been the cause producing the death of the bone; and it is remarkable that, in the Memoir of M. Louis, whence the above extract was taken, and in the very next observation to the one already quoted, there is detailed, with considerable minuteness, the case of a young man who suffered amputation of the thigh for a gangrene, which destroyed the leg as far as the knee-joint. Some months afterwards, the stump not healing, the surgeon extracted a sequestrum, or necrosed portion of the femur, five inches in length. The words in the original are—" Il tira sans douleur, et sans qu'il sortit une seule goutte de sang, une portion de la totalite du femur, de la longueur d'environ cinq pouces." To account for the great length of the *sequestrum*, the surgeon supposed that the gangrene had extended along the *os femoris*, and produced, in this case, the same effects as the caustic application in the preceding one; but ample experience has shown, that, whatever the cause may be by which the extremity of the bone, after amputation, has become denuded or exposed to the contact of surrounding diseased soft parts, the sequestrum will more or less assume the form already pointed out.

It sometimes happens that, after gunshot fracture of an extremity, no effort is made by the constitution to secrete new bone. Several circumstances may give rise to this; but, in the following case, the deficient secretion of bone to replace that which had been destroyed, seems to have been occasioned by the removal of a large portion of the old bone. As the presence of the diseased or necrosed bone is, generally speaking, the cause of the formation of new osseous matter; so this process will cease, or not take place, on the removal of the exciting cause.

Case X.—J. T. was wounded at New-Orleans on the 8th January, 1815, by a grape-shot, which entered in front of the right shoulder, and passed out nearly opposite on the back part, shattering, in its course, the upper part of the humerus and scapula. In August 1815, an incision was made in the line of the deltoid muscle, and several small pieces of bone extracted. Previous to this, nearly twenty pieces of bone had been removed. His general health had originally suffered much; but, at this time, his constitution had in a great measure recruited. October 12, 1816.—It was now determined that the diseased head of the humerus should be removed by an operation; and, on the 18th of the same month, an incision having been made, and the deltoid raised, (few pieces of diseased bone being present), the extremity was amputated at the shoulder joint. On examination of the limb, it was found that no new ossific matter had been deposited any where.

Mr Hunter remarks, that bones fall into disease more slowly than soft parts; and, when they become diseased, are proportionally slow, or in the act of restoration; for all processes go on more slowly and with more difficulty in bones than in soft parts. In addition to this slowness of recovery in bones, it may be remarked that they occasionally have no tendency whatever to become well, even where the sequestrum or dead portion of bone has been removed. In such cases, the fistulous openings continue; they lead into a diseased cavity in the centre of the bone, which, in order to recover, would require being dressed from the bottom;—the application of the actual cautery might, in some instances, prove useful.

Case XI.—J. B. was wounded by a musquet ball on the 11th December, 1813, before Bayonne, about four inches below the knee. Both bones were said to have been fractured, and the ball came out on the inner side of the same leg. He was sent to Plymouth in August, 1814, where various incisions were made, chiefly in the line of the tibia, and several portions of bone taken away, to the number of about sixteen. He, however, continued to lose health and strength, so much that it was determined to remove the limb below the knee-joint, which was accordingly done towards the end of 1816. On examination of the limb which had been removed, the tibia had evidently been fractured; the bone was much swollen, and very vascular, above and below the site of the fracture. *No sequestrum or dead portion of bone existed; but several cloacae or large apertures, leading into a fistulous cavity in the centre of the tibia.*

Necrosis from gunshot wounds, when the case is not complicated, presents the same appearances as simple necrosis, arising from a constitutional cause. This has been already exemplified by the cases of A. C. and T. H.

Case XII.—J. B. was wounded at New-Orleans about the 8th January, 1815. A grape-shot struck the arm high up, and fractured the bone. Amputation of the arm was performed in February 1817, from which he recovered. On examining the bone of the amputated extremity, it appeared that the operation had been performed close to a fistulous orifice in the bone, leading into a diseased cavity, containing a necrosed portion of bone. The shaft of the bone had not died throughout its whole thickness, but only an internal portion. The external layers of bone had become thick, vascular, and there is a considerable deposition of new bone over the whole surface of the old one.

The vascularity of the old bone is judged of by the numerous foramina which everywhere penetrate into its substance, and by which the periosteum transmits prolongations into the tissue of the old bone. This membrane is thickened, pulpy and vascular. On tearing it from off the bony surface, it is evident that none of the new ossific matter has been formed by it; and the few small osseous points which remain on it, after being detached from the surface of the bone, are found, on examination with a magnifying glass, to be fragments broken off from the new ossific matter, formed originally by the vessels of the old bone.

I ought here to point out the many practical conclusions which result from the preceding cases and observations; but as it is my intention to resume the subject at a future period, I shall notice only the most obvious and readily understood.

In necrosis of the *os humeri* extending to the neck of the bone, and requiring amputation, it will be safest to remove the limb at the joint; * and in necrosis of the *femur*, it will be proper to saw the bone through in the trochanters. In gunshot wounds, complicated with fracture or injured bones, local antiphlogistic means must be rigorously enforced. The formation of extensive abscesses, and death of a large portion of bone, will thus be avoided; for we have proved that, by these means, bony parts will recover after being struck by a ball, which, under the ordinary treatment of deep incisions, hot fomentations, poultices, and neglect, fall into disease, and finally become necrosed.

When the stump remains open, after amputation for gunshot fracture or hospital gangrene, having seized the stump and destroyed the soft parts around the bone, renders it probable that a portion of bone has also died, successive amputations higher up ought not to be performed hastily. Experience shows that the necrosed portion will, after a time, be detached, and may be extracted without difficulty. It is even doubtful if successive amputations be admissible, since, as far as I have observed, the *sequestrum* is generally of such length as to prevent the operator from removing the whole of the diseased bone, unless the amputation be very high.

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* See a preparation finely illustrative of this in the Museum of Dr Barclay of Edinburgh.

When the necrosed portion is suspected to consist of the whole shaft of the bone, or of any portion of the shaft of the bone, throughout its entire thickness, splints ought to be worn, and absolute rest enjoined: these splints, aided by a circular roller, may prevent the early occurrence of fracture, and the amputation of the limb.

I am aware that a host of objections will be offered to this theory of necrosis. It will be asserted, that specimens of the entire regeneration of bones are to be found in every anatomical museum; that the periosteum has been found ossified in innumerable instances; that in others the soft parts around the necrosed bone were evidently converted into new bone; and finally, that the experiments of Duhamel and Troja, repeated by so many, must necessarily throw much doubt on the subject. To all these assertions I have to reply, *1st*, That the preceding opinions relative to necrosis, are merely a statement of pathological facts, drawn from a constant observance of nature; *2d*, That I have never seen any specimens of an entirely regenerated bone in any museum, nor do I know of the existence of such a specimen; *3d*, In no dissection performed by myself or others, has the new bone, in cases of necrosis, been found to depend for its origin on the periosteum, or surrounding soft parts, but, on the contrary, it has uniformly appeared to be a secretion from that portion of the old bone which remained alive. New osseous matter thus formed may be readily distinguished from old living bone, however altered: it is irregular, nodulated, and full of *foramina*, for the transmission of vessels: the edges, or those points farthest removed from the base, are generally thin.

Though I have never met with an ossification of the periosteum, it is by no means my intention to say that such an occurrence is impossible, or even rare: most tissues of the human body are liable to be converted into a substance much resembling bone; the *dura mater*, for example, has been found ossified; the pleura, periosteum, the coats of arteries, and even the cicatrix of an old ulcer; but these are diseased, not healthy processes; they resemble each other, and may be classed together, but cannot possibly be confounded with the regeneration of bone in cases of necrosis.

Edinburgh, July 1821. R. KNOX.

V.

Official Report, containing a Case of Disease of the Knee-joint, with Necrosis of the Patella, its Excision, and subsequent Amputation of the Thigh. By JAMES ELLIOTT, Surgeon to the Forces, Barbadoes. *Communicated, according to the Instructions of the Director-General, by* THEODORE GORDON, M. D. Physician to the Forces.

WILLIAM CAMPBELL, twenty-five years of age, tall, robust, of healthful constitution, native of Hastings in Sussex, and mate of the Three Brothers, a trading vessel from New Brunswick (North America) to the West Indies, was admitted into the General Military Hospital, Barbados, January 26th 1821, by special order of Major General Mainwaring, commanding the troops in that Island, in consequence of a severe and extensive disease of the knee-joint. There is a large, circular, elevated, fungus-like tumor, covered with red granulations, occupying nearly the whole of the fore-part of the knee-joint, which is swollen much beyond its usual size; the lower part of the thigh and upper part of the leg partake also of the tumefaction; the patella is exposed to view, dead, and of a blackish brown colour; it lies in the centre of the tumor, separated from its upper and lateral attachments from destruction by mortification, and sloughing of those parts; the only remaining attachment it has, is to the ligamentum patella below. There is much pain and uneasiness throughout the whole of the joint, which is increased by the least motion of the limb; there is a considerable discharge of pus mixed with sanious fluid; the common integuments covering the anterior part of the knee-joint have sloughed; the skin surrounding the tumor does not all adhere to it, and can easily be separated by carrying a probe around between those parts. He has irritative fever, with occasional vomiting of bilious matter; there is also a good deal of nervous irritability in the system, manifested by impatience, anxiety, and increased susceptibility.

I have collected the following particulars of the previous history of the case from his own statements, and which are described nearly in his own words. He states, that during the day of the 26th of December last (1820), he had been much exposed to very cold snowy weather on deck, while getting the vessel he belonged to ready for sea, then lying at St Andrews, New Brunswick (N. America), bound for Barbados. The same evening, he sat down for some time close to the fire in the cabin. On getting up the following morning (27th), he observed the cap of the knee looked white, and was hard to the feel, to about the extent of size of a Spanish dollar; it was not then painful. The vessel went to sea the same morning, and he continued to move about and attend to his duty without much inconvenience. In the evening he complained of pain and swelling around the anterior part of the knee-joint, and observed that the integuments were cracking all around the circular central hard part: not having any surgical assistance, he thought it best to apply a poultice over the whole. On the 28th, he was obliged to confine himself to bed, in consequence of inflammation having come on, attended with great local pain, with redness of the surrounding parts. A watery fluid was discharged from the cracked line of separation. He continued the poultice this and the following day; then, finding the parts more inflamed and painful, he discontinued the poultice, and applied the brown cerate, (*cerat. calam.*) spread on linen daily, occasionally putting on some red precipitate, with the view to destroy the proud flesh (as he terms it) which was increasing fast. The central portion became discoloured, assuming a blackish appearance, previous to which the skin covering it had peeled off. On the 12th of January following, the cerate being consumed, he merely washed the parts clean twice a day, and applied linen rags to the affected part. The wound afterwards continued increasing in size and elevation, and he suffered very considerably from pain and want of rest, until his arrival at Barbadoes on the 20th of January (1821), and his admission into the General Military Hospital on the 26th of the same month.

From the foregoing statement, as related by himself, it appears, that in consequence of long exposure to intense cold, the soft parts covering the patella, and those connected with it, became *frost-bitten*, which, being afterwards exposed to heat, mortification of them rapidly ensued; and the patella itself being deprived of nourishment, from the destruction of those vessels which supplied it with blood, went into a state of necrosis. Violent inflammation of the surrounding parts was induced; which, extending to the knee-joint, produced ultimately disorganization of those parts which enter into its composition; great external swelling, stiffness in the joint, considerable pain, increased on motion, great deposition of coagulable lymph. A large prominent soft tumour, covered with luxuriant granulations, filling all the space where sphacelus of the soft parts had taken place, with the patella of a blackish colour, lying imbedded in the centre, and from which issued an immense discharge of pus and sanies, and a whole host of painful and distressing symptoms, both general and local.

On his admission into the hospital, all those means which tend to alleviate pain, and remove irritation, both general and local, were resorted to; emollient fomentations and poultices were applied to the diseased parts, anodynes were administered, and strict attention was paid to the state of the stomach and bowels.

Shortly after his admission, I was requested by my friend Dr Bone, physician to the forces, then in charge of the General Hospital, to give my opinion whether amputation might be necessary to save the patient's life. After a due examination into the state of the knee-joint, and inquiry into his general health, I considered that, although there seemed to be but little chance of ultimately saving the limb, and as the patient was restless, and showed great reluctance to the idea of the operation, there would be no impropriety in waiting a short period longer, as probably he might become more tranquil, and his mind better prepared for the operation of amputation; but, at the same time, as the dead patella was lying quite loose in the centre of the ulcerated surface, and appeared to be acting as a mere extraneous body, keeping up irritation, I thought it advisable to remove it, by separating it from its only remaining attachment, the ligamentum patellæ below, which was accordingly done.

After this, there did not appear in him any symptoms of amendment whatever, either in the state of the wound or in his general health, but, on the contrary, he became worse in every respect; abscesses formed in the ham and sides of the joint. I evacuated a very large collection of matter, by making an incision through the integuments on the inner side of the limb, opposite to the joint; his constitution began to suffer; he complained of cough; some night fever, followed by copious sweating, succeeded; and he became more emaciated. It was then decided, that amputation of the limb afforded the only chance of saving his life; to which operation the patient had now reconciled his mind.

The operation was deferred somewhat longer than was intended, in consequence of his having had a severe attack of dysentery after his reception into the hospital, which tended much to harass him, and reduce his constitutional strength.

On the 20th of February, twenty-five days after his admission, and eight weeks from the commencement of the disease, I amputated the limb. The first incision was carried through the lowest portion of sound integument of the thigh towards the knee-joint, and the *os femoris* was sawn through a little above its middle; a sufficient quantity of soft parts were left to well cover the bone, the flaps of which were brought together, forming a line in the horizontal direction; only five vessels were secured by ligature, and not the least after-hæmorrhage ensued. The necessity of amputation was further proved by the dissection of the limb after its removal; the ligaments, particularly the capsular, and cartilages of the joint, were diseased; the former thickened, and partially obliterated; the latter in part ulcerated; the upper articulating surface of the tibia was slightly carious; the articulating extremity of the *os femoris* discoloured; and the inserting portions of the rectus, crurœus, and vasti muscles, were destroyed by disease. Extensive abscesses were found burrowing around the joint. One of these, which I had opened on the inner side of the joint some days before, extended several inches down the leg, along the surface of the tibia, the matter of which lay in contact with the periosteum of that bone, and which (the periosteum) showed evident marks of incipient disease.

The fungus-like tumor occupied every part of the anterior of the knee joint, which had been destroyed by the process of mortification. On making a section of it, it appeared of a whitish yellow colour, soft and elastic to the feel: the upper surface, covered with granulations, was red, which colour extended to about a third of an inch in depth over the whole of its surface.

After the limb was removed, the patient became tranquil and easy, he slept well, his appetite returned, the cough and other pulmonary symptoms subsided, his general health gradually improved; the stump healed in great part by the first intention; the suppurative process was much less than could have been expected, which I attributed to the parts being kept in a cool state, by lightness of the dressings, and cloths wetted with cold water frequently applied externally.

The ligatures, although frequently solicited in due time after the operation, adhered with a pertinacity rather unusual; of the five that were made use of, one, which secured the femoral artery, was composed of three silken threads; the two which secured the two arterial branches next in size, were of two threads; the remaining two with which the smallest branches were tied, were of one thread only. One end of each of the three first was cut off close to their respective vessels, and the other brought out of the wound; *both ends of the two single-thread ligatures were cut off close to the vessels secured.*

The tenaculum was used in taking up four of the arteries; but the large *profunda* branch, when divided, being so matted between two condensed layers of cellular substance, that I could not separate it from its connexions with the tenaculum, to enable me to secure it to my satisfaction; I therefore did not hesitate to take it up by means of the needle and ligatures; and I was afterwards happy to find that this ligature gave the least trouble, and was the first to come away. In regard to the two small single ligatures, both ends of which were cut off close to the vessels; I had afterwards some reason to regret I had not left one end of each hanging out of the wound, as they kept up irritation, and caused the formation of small abscesses with fistulous openings for some length of time, from which circumstances I shall be induced for the future, in this climate at least, always to bring out one end of each ligature, with the view of enabling me to facilitate their removal.

It afforded me great satisfaction to find that the patient completely recovered his health, and that the stump, after the removal of the ligatures, finally healed, leaving visibly the appearance of a line only of cicatrix along the surface of the stump. He has returned to England; and most probably is now enjoying good health in the society of his friends at Hastings, and likewise expressing his gratitude (which he always did) for the kind attention he received from the medical department of the army.

VI.

Case of Difficult Parturition, from the Locking of the Heads of Twins. By JAMES ALEXANDER Junior, Surgeon, Dunfermline.

As I do not know of any case similar to the following on record, I have transmitted it to you for insertion in the Medical and Surgical Journal.

I am aware, that the case which I am about to relate involves no general principle, and leads to no new or very important practical conclusion; and consequently, that it is destitute of the highest claims to interest and attention; but if it be, as I suppose, a fact altogether new, as such, it possesses at least a certain kind and share of interest. And indeed any instance, however insulated, or however unlikely to occur again, either of a new power in nature of recovery, or a new susceptibility of disease, must be deemed worthy of so much attention at least as to merit being preserved.

On Monday morning, the 21st of October, I was sent for to visit a woman in labour. The account I received from the midwife in attendance was, that she had been called to the person on the preceding Wednesday; but that, at this time, the dilatation of the *os uteri* had not commenced, and only began to take place on Sunday, though, during the three foregoing days, the pains had recurred with such regularity, and so severely, as to make the woman herself believe that she was in actual labour. That even after this, the presentation, which was the breech, was propelled very slowly, until it advanced so far as to permit the feet to be brought down, and the body and arms extracted; but that such unexpected difficulty had occurred in delivering the head, as to render it necessary to send for some medical man to extricate it. Upon examining, I felt a head occupying the cavity of the pelvis; and, as the face was not felt in the hollow of the sacrum, and as I was anxious to complete the delivery as soon as possible, I endeavoured to turn the child, so as to bring the head into the proper position, and then to extract it. This, however, I found I could not accomplish; and, surprised at the difficulty I experienced (which I was sure did not proceed from narrowness of the pelvis), and puzzled by the feeling of something strange and unusual about the position of the head, I left off my endeavours at extraction, and proceeded to make a careful and accurate examination. The result of this convinced me, that the head, which I felt filling the hollow of the sacrum, belonged not to the child whose body was protruded without the external parts, but to a second child, whose body still remained *in utero*; and that the head of the former was no farther advanced than the brim of the pelvis. Upon raising the body of the expelled child, and introducing the hand along the side of its neck, by using some force, the fingers could be pushed up betwixt it and the head of the second child, so as to ascertain that there was no connexion between them. Passing the hand along the back part of the neck, the fingers could be pushed so far as almost to touch the occipital protuberance; and towards the left side of the pelvis, the form of the under part of the face could be distinctly recognised. In short, the face of the child, which was still in the uterus, was turned into the hollow of the other; while the face of the other (the head being at the brim) lay towards the left side, so that the two heads were completely impacted, the lowest one obstructing the descent of the upper, while the upper, in its turn, as effectually prevented the further advancement of the body of the former. Under these circumstances, as it was perfectly impossible to push back the lowest head, it appeared to me, that the only method of effecting the delivery, was to puncture the nearest head immediately; and if, by this means, sufficient room should not be obtained to deliver the other head, enough would at least be acquired to allow the application of the scissars to it also. Before proceeding to operate, however, in a case so singular, I requested my friends, Dr Stenhouse and Mr Dewar, to examine the woman, and favour me with their opinion. As the opinion of these gentlemen coincided exactly with my own, I immediately punctured the lowest head. This was an easy matter, though rendered rather more difficult than it would otherwise have been, from the passage being partly occupied by the body of the other child; but, even after this had been done, it was found impossible to extract the other head, and it was therefore necessary to perforate it likewise. The only part which even yet could be felt distinctly, was the occipital protuberance, the face lying obliquely towards the left side of the pelvis; and from the way in which the remains of the lowest head were placed with regard to the upper one, after the instrument had been conducted along the fingers to this point, a part of the operation which required a good deal of caution, it was necessary to depress it considerably towards the left side, as otherwise it was apt to glide over, instead of penetrating the bone. At length, after some difficulty, it was thrust into the cranium in an oblique direction, the point entering close by the foramen magnum. The brain was then broken down by the crotchet, and as much of it as possible brought away; but, even then, it was no easy matter to bring down the head, and it was only accomplished by the exertion of considerable force, both on my own part, and that of the gentlemen who assisted me. After this head was extracted, the other child was easily delivered, and shortly after the placenta. During the first and second day after delivery, no bad symptom occurred. During the second night, however, the woman was seized with a violent shivering; the pulse rose rapidly to 120; the skin became hot and dry, and the whole of the abdomen exquisitely painful and tender; and I remarked, next day, that her mouth and tongue had assumed something of the appearance which characterizes the advanced stages of typhus fever. She was immediately bled to syncope, and her bowels freely purged with calomel and neutral salts. The symptoms were, by these means, greatly relieved; but recurred on the 25th, when they were again met by a repetition of the same remedy. By persisting in the antiphlogistic mode of treatment, the pain in the belly was completely removed, and the febrile excitement very greatly diminished. The pulse, however, occasionally rose at night, though generally little above 80; and the tongue retained its dry, furred, and blackish appearance, in spite of the employment of the ordinary means to improve the state of the bowels. Still the symptoms appeared to be decidedly favourable till the 1st of November, when she was seized with another shivering, and, after it, with excruciating pain over the upper part of the sacrum, and lower part of the spine, impeding motion, and aggravated by pressure on the back. About the same time, I was told that the lochia, which had disappeared after the second bleeding, had returned; and accordingly a very fetid bloody discharge was found flowing from the vagina. The pulse became excessively quick, and the countenance had an expression of great agony. As purgatives and diaphoretics failed in removing the pain and fever, I was obliged, though reluctantly, considering my patient's debilitated state, again to have recourse to the lancet. By one moderate bleeding, the pain was greatly alleviated; but the case now seemed perfectly hopeless. The pulse sunk in strength, but did not fall in frequency. The woman's strength declined, in spite of every attempt to support it; the countenance became collapsed; subsultus tendinum and singultus came on; and her life terminated on Wednesday the 8th of November, being the sixteenth day after delivery.

With some difficulty, permission was obtained to examine the body. On laying open the abdomen, the peritoneum, and all the abdominal viscera (with the exception of a trifling degree of redness on some parts of the convolutions of the intestines) appeared perfectly sound. Proceeding to the pelvis, the uterus was found reduced to nearly the size we expected to find it in ordinary cases, considering the time that had elapsed since delivery; but its substance, particularly towards the left side, felt rather softer than natural, and, upon laying it open, the whole of its inner surface, but particularly the cervix, was found thickly covered with an unhealthy secretion of a dark brown colour and offensive smell; and on attempting to remove it, the inner surface of the uterus, to which it adhered, was in some places torn from the subjacent parts. The appendages of the uterus, and other viscera lying in the pelvis, were healthy; but the cellular substance lining the sacrum, and lying betwixt it and the rectum, bore the marks of high inflammation of recent date, although the coats of the bowel were perfectly sound.

Dunfermline, November 23d, 1821.

VII.

Sketch of two small Supernumerary Muscles of the Arm. By MICHAEL DAWSON, Member of the Royal College of Surgeons in London, and one of the Surgeons of the Liverpool Dispensary. *With an Engraving.*

THE subjoined sketch of two small supernumerary muscles of the arm, is a correct outline of a dissection I made some months ago; and although this variety in the distribution of muscles may be unimportant in a surgical point of view, yet the knowledge of it may save the student in anatomy some perplexity, should he meet with a similar arrangement.

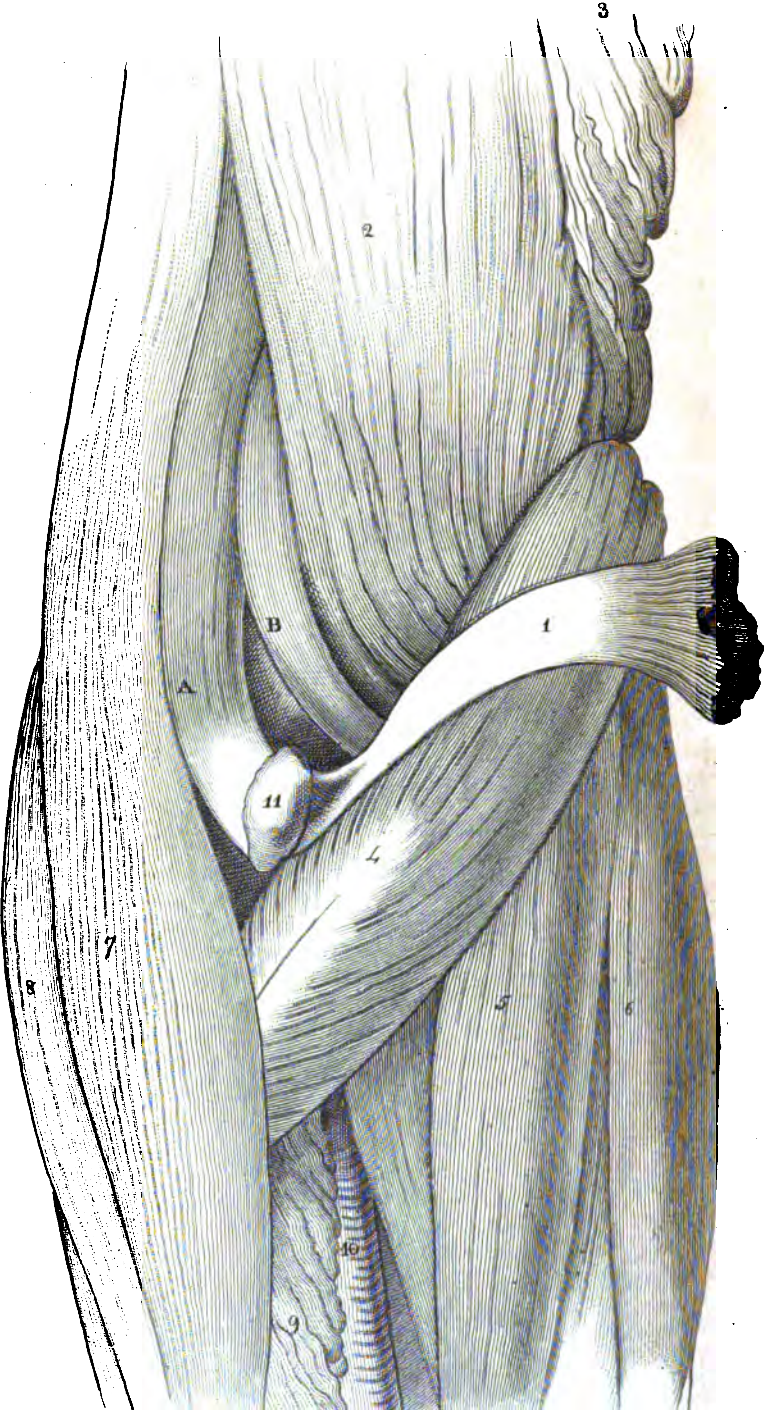
In black subjects, an occasional irregularity in the distribution of the arteries has been met with; and, in Europeans, we find slight deviations in the arrangement of the smaller muscles, viz. the pyramidal muscles of the abdomen, the pyriform muscles of the hip, and some others; but I have not seen any description of the following arrangement: it was not made by the knife, for these muscles were separable, were covered by layers of cellular membrane, and had distinct insertions.

The subject was a fine young man, about twenty years of age; and it may be worth while to remark, that there was only one kidney, which was on the left side, and its ureter was enlarged to the size of the little finger. The kidney which should have been on the right side had probably been absorbed, for no vestige of it remained; and the ureter of that side had become a mere ligamentous chord.

The first muscle (A) arose in common with the outer origin of the brachialis internus, and from the ridge of bone which extends from the outer condyle of the os humeri; its fibres were also blended at its origin with those of the supinator radii longus; it then ran a separate course, and was inserted by a beautiful and distinct, but slight tendon, into the lower and outer edge of the tubercle of the radius, between the tendons of the biceps and supinator radii brevis. This muscle passed over the head of the radius; was about the same length, and half as thick as the pronator teres. It must have acted as a supinator and flexor of the fore-arm.

The other muscle (B) might, not improperly, be said to be a fasciculus of fibres separated from the brachialis internus by cellular membrane; for although it was a distinct small muscle, yet in its origin, insertion and use, it resembled the brachialis. It arose from the outside of the brachialis, and was inserted

Mr. Dawson's Case.



fleshy into the coronoid process of the ulna. It can only be called an additamentum brachialis interni.

1. Biceps flexor cubiti, cut a little above its tendon, and turned back.
2. Brachialis internus.
3. Triceps extensor cubiti.
4. Pronator teres.
5. Flexor carpi radialis.
6. Palmaris longus.
7. Supinator radii longus.
8. Extensor carpi radialis longior.
9. Flexor longus pollicis.
10. Radius.
11. Tubercle of the radius.

VIII.

On the Uses of the Spleen. By THOMAS HODGKIN.

AMONGST the objects which yet remain for our investigation, after the persevering research of a vast host of acute anatomists and physiologists who have adorned this country and the Continent of Europe up to the present day, the uses of the spleen may, I believe, still be numbered.

In entering on the consideration of this subject, Haller has said, "In meras hic conjecturas demergimur obscuriores quam fere alio in viscere." When I recollect the names of those who have already been engaged in this investigation, I am almost induced to fear that I shall be accused of presumption in attempting to meddle with it; but, on the other hand, I am tempted into a field, so far cleared by their labours.

It is, I apprehend, perfectly needless for me here to say any thing of the structure or situation of the spleen; but, before attempting to explain the office which, I conceive, this viscus is destined to perform, I may perhaps be allowed hastily to glance at the theories which have already been advanced. Some of them are, however, almost too ridiculous to deserve notice. One while it was considered the seat of melancholy, then of merriment; while some have held that it was connected with generation. Aristotle thought that it received vapours from the stomach, to convert them into different fluids. Franciscus Velinus imagined that, in it, the fluids of the stomach were converted into blood; Stukely, that it acted as a sponge, and that, at will, blood might be pressed from it either into the arteries or the veins, as well as that it furnished blood to the genitals. Harrison thought that it furnished a mucilaginous fluid; and Rivinus, that its secretion lubricated the viscera of the abdomen. Some have attributed to it a muscular power, by which it can compress its vessels (Willis); others, that it supplied the stomach with warmth; that it balanced the liver; or that it rendered the blood of the vena portæ more alkaline and fluid, in order to obviate any danger of obstruction and scirrhous induration, which its slow circulation, and the deterioration it had undergone in the omentum and mesentery, might induce; that the blood acquired new properties in the spleen, by delay in its cells and large veins, and by its proximity to the fetid contents of the colon. It was the opinion of Malpighi, and, from him, revived by many others, that it prepared the blood for the formation of the bile; while others have not been wanting who denied its being of any use.

More recently, that indefatigable physiologist and anatomist, William Hewson, conceived that, in the cells of this organ, the red particles of the blood were completely formed round smaller particles, the production of the thymus and lymphatic glands. His theory has now shared the fate of its predecessors. His ideas respecting the red particles have been proved erroneous; and, though the delicate injections of Dr Haighton have clearly shown the cellular structure of the spleen, yet these cells are not such as William Hewson had conceived them to be.

Sir E. Home, in two papers read before the Royal Society, London, in 1807 and 1808, advanced the ingenious speculation, that the spleen relieved the stomach of superfluous fluids which passed into it by direct communication; though, in 1811, he withdrew this opinion, which therefore requires no further comment. I may perhaps be permitted to say, that the interesting experiments which he has related in these papers are not less valuable than if they had fully confirmed the views of their author. No arguments which have as yet been advanced, appear to me more strongly to support the idea, that some part of the process of absorption devolves on the veins. They likewise tend to strengthen an opinion which I have for some time entertained, and which I hope soon to bring to the test of experiment, that those fluids which are taken up by the veins are either acids, or stand similarly situated in Professor Œrsted's arrangement, while the absorbents receive those of the opposite class.

The theory which I believe at present meets with the most general support, is that of Dr Haighton. After having proved that the blood drawn from the splenic veins does not sensibly differ, as Hewson had asserted, from that of other veins; and that the bile of an animal whose spleen has been removed, is not necessarily changed in any respect, as Malpighi has said,—Dr Haighton advanced it as his opinion, that the spleen was subservient to digestion in another way, occasioning an increased secretion of the gastric and pancreatic fluids, at the precise time when they are most required. In explaining the mode in which this effect is to be produced, he agreed with Haller in the opinion, that the stomach, when distended with food, makes sufficient pressure on the spleen to supply its cells, and to direct the blood commonly sent to it to the stomach itself, and to the pancreas. The late lamented Henry Cline junior, about the same time, was induced to come to a similar conclusion.

This speculation, which has deservedly gained many admirers, is not, as Dr Blundel, the nephew and ingenious successor of Dr Haighton, very candidly acknowledges, perfectly free from objection; noticing, at the same time, the fact, that Nature can, on occasion, supply particular organs with an increased quantity of blood, without such a contrivance, *i. e.* the nipple, combs of cocks, &c.; that, in ruminating animals, the spleen is not connected with the digesting stomach, which ought more particularly to require its assistance; and he hence concluded, that though the office which Dr Haighton had assigned to the spleen is probably one of the functions which it has to perform, others may also belong to it, which remain to be discovered. Besides these objections, which are admitted by Dr Blundel, others I think may yet be urged against Dr Haighton's theory. It appears to me that an elastic, easily distendible bag, like the stomach, filled with a soft pultaceous mass of masticated food passing into chyme, and enclosed by the yielding parietes of the abdomen, is ill adapted to expel the blood from the innumerable spherical cells of the spleen, or to resist the flow of blood through the splenic artery. Nor, were it capable of doing this, can I conceive that it would favour the healthy secretion of either the gastric or pancreatic juices. Hæmatemesis might more naturally be expected.

Having now endeavoured to show that all the speculations as yet advanced respecting the spleen are liable to objections, it remains for me, as briefly as possible, to explain the opinion which I was induced to form concerning this organ, when considering the subject rather more than a year ago.

The structure and situation of the spleen—the different appearances it assumes, according to the circumstances under which death has taken place—the causes which derange it, and the effects which it produces on the system when deranged—together with the result of experiments made on inferior animals, conspire to induce me to believe, that the spleen performs in the animal system a similar office to that which tubes and valves of safety do in various kinds of chemical and mechanical apparatus.

The comparison may, perhaps, be thought a strange one; but, I believe, it will make my idea sufficiently intelligible when I say, that I imagine that the office of the spleen resembles that of the middle tube of a Woulfe's apparatus. By this I wish it to be understood, that the spleen tends to obviate any inconvenience which might arise from a sudden disturbance of the proportion between the capacity of the vascular system, and the fluids which circulate in it. These disturbances must, I conceive, be frequently induced by various causes to which animals are continually exposed, and which operate more powerfully than the elasticity of the vessels alone can compensate for, and more rapidly than absorption, secretion, and excretion can, in every case, counteract them.

It will now be proper that I should enumerate the reasons which, if I am not mistaken, support me in this opinion.

1. The structure of the spleen.

The cells of this organ appear admirably calculated to admit, with impunity, of a protracted congestion of blood in them, which, in other parts, would necessarily be followed by consequences of the worst nature. On the one hand, these cells are sufficiently minute to bring the blood so much into contact with the solid vital parts as to remove every danger of coagulation which takes place when blood escapes from its vessels; and, on the other hand, those changes are not likely to be effected in it, at least with the usual rapidity which takes place when the blood enters the ordinary minute terminations of vessels. In addition to this, these spherules have this advantage, that they will be less likely to yield and rupture under the sudden distension produced by the accession of a large quantity of blood.

2. The idea is not a little supported, as I apprehend, by the situation of the spleen. I have already said, that it seems improbable that it can receive from the stomach that degree of pressure which, according to the theory of Dr Haighton, it is necessary that it should do; and here I may add, that it appears highly probable that the spleen is placed in contact with the stomach; for this very reason, that, of all the viscera of the abdomen, the stomach is the least likely to interfere with the variations of its dimensions, as well as for the sake of the protection which, in this situation, it receives from the ribs.

Not less consistent with this idea of the functions of the spleen, is its connexion with all the viscera of the abdomen, through the medium of the vena portæ, which, probably on this account chiefly, has not been furnished with valves.

3. The great variety which is met with as to the size of the spleen, has I believe been long observed, and has tended to add to the perplexity in which the function of this organ has been involved.

Should the limited observations, which it has been in my power to make with regard to this point, be confirmed by the experience of others, this variety will add support to the speculation which I have advanced. In persons who have died suffocated, I have found the spleen large and turgid; but, in a man who died from the bursting of a large aneurism, which extended from the origin of the cœliac artery quite into the pelvis, the spleen was small and flaccid. Should such coincidence not be found to exist in all cases of death from similar causes, this circumstance alone will not amount to a refutation of my opinion; for we cannot but suppose, that, in different individuals during life, this function of the spleen must be more or less forcibly and extensively called into action, by which the growth of the organ must be affected to a degree which the circumstances occurring at death cannot, in every instance, be able to countervail.

4. Before proceeding to relate some experiments which have been made in relation to this subject, it will be as well to mention a few pathological facts which may be advanced in support of my opinion.

First, as to the causes which tend to produce disease of this viscus. Of these, none is more remarkable, and at the same time of more frequent occurrence, than intermittent fever.

In the cold stage of an intermittent, when the vessels of the surface are often suddenly diminished in capacity, and when, consequently, a large quantity of blood must be as suddenly thrown upon internal parts, an organ acting the part which I have here attributed to the spleen, must be called into unusually active service, at a time when the febrile state checks those secretions by which it is to be itself relieved, and the balance between the circulating fluid and its vessels is to be preserved. What else could we expect of an organ frequently called into excessive service of this kind, but first increased growth, and afterwards, should the cause continue to operate, derangement of structure? Those who die of ague are, it is well known, almost invariably cut off in the cold stage, and the spleen is either found prodigiously gorged with blood, or actually ruptured. More frequently, however, the complaint being less urgent, proceeds to the derangement of the spleen, and effects are produced which I shall presently have to consider.

Another complaint which leads to the derangement of the spleen, is amenorrhœa; and the mode in which it acts, admits I apprehend of as easy an explanation as the preceding case, provided the functions which I have supposed be attributed to the spleen.

Secondly, A very few words will suffice with regard to the effects produced by the structure of the spleen becoming so far deranged as to disable it from fulfilling its function. Either hæmorrhage or serous effusion is, I believe, the almost invariable consequence induced, as I conceive, by the small vessels being unable to sustain the shock occasioned by a sudden disturbance of the balance between the capacity of the vascular system and the circulating fluid; which shock, in the healthy state of the spleen, is in a great degree broken by it, assisted, no doubt, by the elasticity of those vessels which have not been exposed to the constricting cause.

5. I shall now relate a few experiments on inferior animals, and then conclude.

An experiment related by the ingenious and indefatigable B. C. Brodie, in his Lectures delivered last summer at the London College of Surgeons, appears to me to strengthen my opinions, though the object for which it was instituted was not connected with an inquiry into the office of the spleen. The vena portæ of a dog was obstructed by a ligature, just as it enters the liver. After some hours uneasiness, the animal died; and, on examination, the abdominal viscera, as we must conceive would necessarily have been the case, were found charged with venous blood. This, however, was most remarkably the case with the spleen, which was gorged with blood, and prodigiously distended. Here the spleen seems to have performed its part to the utmost; but the relief which it in its turn requires, being cut off by the ligature on the vena portæ, no exertion of its function, however considerable, could preserve life.

Though it will be quite needless here to quote all the interesting experiments of Sir E. Home, to which I have before alluded, since they have now been long before the public; yet I cannot forbear availing myself of the support which I may derive from such respectable authority, by noticing a few of the circumstances which occurred in the performance of them. Infusion of rhubarb was repeatedly given to different animals, and invariably the spleen was found turgid, and its blood impregnated with the rhubarb; and this, notwithstanding that the thoracic duct and right trunk were secured, and that the chyle exhibited no trace of the drug. Nor did the part of the canal, from which the absorption took place, appear to cause any difference, as the same results are obtained, whether the infusion was lodged in the stomach, as in the experiments made on the dogs and rabbits, or in the larger intestines, as in the ass. I would here inquire, Does not this look like venous absorption?—for what other system of vessels is there, which, in this case, could communicate at once with the stomach, intestines, and spleen?

The experiments of Sir E. Home further prove, that this passage of the absorbed fluid into the spleen, is neither at all times necessary, nor invariably taking place; for the spleen, he has since shown, may be removed without preventing the rhubarb from finding its way into the system. But I would more particularly solicit attention to the following fact. In all the preceding cases, fluids had been injected, and the spleen was full and distended. When, however, the rhubarb was given in substance, and the animal deprived of water, which was done for four days, in the case of one ass which Sir E. Home subjected to his experiments, the spleen was found contracted to half the size of what it was seen in the former experiment, and its substance was also as much condensed as that of the liver; nor did the blood from it, in such cases, exhibit any very marked indication of the presence of rhubarb, at least not more than in the other parts of the body, though its presence in the urine proved that it had been taken into the system. Sir E. Home has remarked, "that the spleen is met with in two very different states, one of which may be termed the distended, and the other the contracted; and that, in the one, the size is double what it is in the other."

In the distended state, there is a distinct appearance of cells, containing a limpid fluid, distinguishable by the naked eye. In the contracted state, these only become distinct when seen through a magnifying glass; the distended state takes place when the stomach has received unusual quantities of liquids before the animal's death; and the contracted state, when the animal has been kept several days without drink before the spleen is examined. In a subsequent paper, he states his belief that this limpid fluid is the peculiar secretion of the spleen, which is conveyed to the thoracic duct by the lymphatics of the organ, which are, as he has said, larger in this than in any other organ. "The purposes," he adds, "that are served by such a secretion from the spleen into the thoracic duct, cannot be at present ascertained." If I might be allowed to offer an explanation of the preceding facts, it would be the following.

Consistently with the idea, that the spleen is to maintain the balance between the circulating fluid and the vessels destined to contain it, we cannot be surprised to find it in its turgid state, at a time when absorption is making large contributions to the former; and more especially if we admit, as I cannot help doing, that the veins take a share in the process of absorption. The contracted state is not less accordant with that state of the system which must be induced by secretion being continued, while the accustomed supplies are withheld. As to the fluid conveyed from the spleen to the thoracic duct, and which Sir E. Home has considered as the secretion of this organ, I must beg leave to hold a different opinion, and to regard it as merely the effect of ordinary lymphatic absorption actively going forward to relieve the spleen of the load which the other viscera are throwing upon it. The whitish corpuscules, I imagine, are intimately connected with the lymphatic system. I have found them particularly conspicuous in a cat, whose lymphatic glands, throughout the body, were remarkably large.*

If my speculations should prove correct as to the nature of the matter taken up by the absorbents and veins, it may account for the absence of any trace of rhubarb in the fluid contained in the absorbents, and also for the strong signs of it, which Sir E. H. so repeatedly observed in the splenic vein. William Hewson has also observed the fluid contained in the lymphatics of the spleen. The red colour which he observed in it must, I imagine, be attributed to some extravasation, the consequence of congestion, occasioned by the ligature which he had applied.

In the 8th month (August) last, after dividing the spinal marrow of a cat, I opened her abdomen, and immediately immersed her in cold water, taking care not to admit the water into contact with the viscera of the abdomen. The spleen became sensibly turgid. This seems to prove, as far as the result of our experiment can do so, that the spleen is, in the mode which I have hinted at, subservient, not merely to the vessels of the abdomen, but to those of the system generally. The derangement produced in this viscus, by intermittent fever, tends to the same conclusion.

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* Some experiments have been made on this subject by my friend Bracy Clark, a very ingenious and scientific Veterinary Surgeon, who has thrown much light on the feet of animals with undivided hoofs, and has investigated, with great success, the habits of *œstri*, as well those peculiar to other animals as to the horse. I have not yet been able to procure the detail of his experiments; but, from the sketch which I have received, I believe they will rather confirm me, than not. He has not himself advanced any opinion grounded upon them.

I have not been able to learn whether any peculiar symptoms were discoverable in the two instances which are recorded, of the spleen having been extirpated in the human subject; but some of those which have been observed in dogs, from whom this organ has been removed, and which Haller has recorded, on the authority of Jolyffe, Boyle, Malpighi, Hunter, and some others, seem to indicate an increased stress upon the arterial extremities; as *e. g.* an increase in the flow of urine—a greater degree of salacity—and the accession of plethora. In some, the functions of the liver were disturbed, and this organ itself rendered turgid.

I have now given a sketch of the principal reasons which have led me to the opinion which I have here advanced, not by any means as a point which I as yet regard as demonstrated, but rather to be considered as a suggestion; nor shall I be surprised if some one, better acquainted with the subject than myself, should say with Haller, "Nondum tamen inde audeas aliquid firmioris theoriæ superstruere;" yet I am induced to trust, that there is enough of plausibility to secure me from censure, in having ventured to bring it forward.

It will, I have no doubt, be thought by most, that I should myself have made more experiments with regard to this question; to whom I can only state, in defence, that, besides having little opportunity for doing so, I conceived that, by availing myself of the experiments of others, of men of the highest celebrity, no imputation could arise of facts having been warped to suit theory, which, by the theorist, may sometimes be innocently done; and further, the performance of these experiments would be necessarily attended with a degree of cruelty, which would render them alike painful to myself to undertake, and to others to hear detailed.

THOMAS HODGKIN.

Edinburgh, 4th month (*April*) 1821.

PART II.

CRITICAL ANALYSIS.

I.

1. *Morbus, quem Radesyge vocant, quinam sit, quanamque ratione e Scandinavia tollendus?* Commentatio, Auctore Frederico Holst, Medicinæ Doctore. Christianiæ, ex Officina Lehmanniana. 1817. pp. 157. 8vo.
2. *Ueber die aussatzartige Krankheit Holsteins, allgemein daselbst die Marschkrankheit genannt.* Von Ludwig August Struve, Dr der Med. und. Chir. pract. Arzte in Elmshorn. 1820. 206 seit in 8vo.

We believe it is pretty generally known, that many of the insular and maritime regions of Northern Europe have been long noted for the prevalence of a disease, partly cutaneous, partly membranous, partly constitutional, rather obscure in its nature and origin, but which many authors, both general and professional, have considered as closely allied to the Arabian Leprosy. Nay, some have even gone so far as to assert its identity with that malady, and to say that, while the augmenting and improving influence of cleanliness, better food, and the other benefits of civilization, had banished this formidable disease from the central and southern parts of Europe, this remnant of it still continued to linger in these inhospitable and penurious regions, where it is barely possible for the human race to exist under the malignant influence of a cold and humid atmosphere, and where the physical peculiarities of their country compel the natives to submit to many privations, and encounter innumerable severities of weather, in dragging a precarious subsistence from the bosom of the ocean. * Although there may be more truth and propriety in this view of the matter than the first glance would lead one to expect, yet we are scarcely prepared to admit it in its present unqualified form; and we should certainly wish some more evidence, both medical and historical, before we assent to an opinion which is not without considerable importance as a subject of medical police. It is, perhaps, a fortunate circumstance for us that we cannot, in this country, have direct ocular proof of the identity of the Northern Radesyge and the Arabian Leprosy; but our interest in the extension of medical knowledge, and its application to the improvement of the physical condition of our fellow-creatures, makes us witness with great pleasure the labours of German, Danish, and Swedish physicians, in ascertaining the nature, and discovering the causes, of this Arctöic scourge.

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* The Chevalier Bach apud Uno Van Troil. Letters on Iceland.
Feroe Reserata, auctore L. J. Debes.
Observations on Elephantiasis. By Arthur Edmonston, M. D. Med. & Surg. Jour. Vol. VI. p. 166.

Although the Radesyge, Spedalskhed, Spedalska, Liktraa, or Saltzfluss, the various denominations applied to this disease in different countries of the North, must have been known, both personally and by the testimony of travellers and natural historians, to the more early Swedish or Danish physicians, yet it is not particularly mentioned by medical authors till the middle of the last century. Thomas Bartholinus, indeed, knew that it prevailed in Iceland and the Feroe Islands; but he does not speak as if he had actually seen persons affected with it. Isaac Udmann of Ostrobothnia described it, in 1763, as it appeared in that district of Finland, and especially in the town and vicinity of Cronoby.* Since that time, it has formed the subject of several inaugural dissertations, and not a few monographical essays. Of the latter description, the most recent are the commentary of Frederic Holst, and the work of Louis Augustus Struve; in the latter of which we find an account of the disease as it has lately appeared in the dutchy of Holstein; while the former describes the radesyge as it has long prevailed in Scandinavia, and considers the means by which it might be eradicated. As the subject of these works is so much the same, that the individual analysis of each would in many points occasion repetition, and perhaps confusion, we shall, for the sake of uniformity, give a concentrated view of the information contained in both, while we employ such other sources as are accessible, in order to consider the problematical question of the relation between the radesyge and the Arabian leprosy.

All the writers almost who have had opportunities of observing the radesyge through its entire course, speak of it as existing in two stages or degrees; the first a latent, occult, or incipient; the second, an evident, open, or confirmed state. Such seems to be the opinion of Gislesen, Ahlander, Schnurrer, Holst, and Struve, from whom chiefly our information on this subject is obtained.[*] A proof that something is still wanting in the history and observation of this disease, occurs to us in the very outset, when we are told that authors are not entirely uniform as to the mode in which it commences; some asserting that it begins with a violent and obvious febrile state, others that cutaneous symptoms appear, without any constitutional derangement of this kind. We suspect that this difference may be ascribed to two causes. 1*st*, That the medical observers have not in every instance seen the disease in its birth as it were, as it does not at first necessarily incommode all those who are attacked with it; and, 2*d*, that the precursory symptoms were in truth so slight in some instances, as completely to elude observation. Thus, when Ahlander and Vought declare that the skin is affected without any previous constitutional derangement,[†] and Hecquer describes the disease[‡] as commencing directly with the spots, scabs or wheals (maculæ), we believe that, in the cases from which they had derived their conclusions, the febrile motions were actually very slight and imperceptible. We know instances of the same cutaneous disease being, in different circumstances, preceded by very various degrees of febrile affection; and whoever has seen half a score of cases of hæmorrhagic purpura, can testify the same fact. Perhaps it may be discovered, on more extensive and accurate observation, that the introductory fever is by no means a necessary part of the disease; but that this mode of origin is influenced by the accidental exposure to cold and moisture, or any other cause which in ordinary circumstances induce fever, while it may come on gradually in many cases, where such causes did not exist.

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* Amœnitates Academicæ, Vol. VII. p. 94.

Dr Böcker of Upsal, who had opportunities of seeing the radesyge in the north of Sweden, and in some parts of Norway, when travelling there, informs us, that "previous to the eruption, the diseased sometimes complain of illness, general languor, pain in the limbs, exacerbated towards night, &c.; but frequently it comes on without any precursory symptom, and may for some time proceed under no alteration in the general health."[§]

Mangor and Munk, who seem to have spared no pains in obtaining the best information, both personally and testimonially, are most particular in noticing the febrile origin of the radesyge; and Cederschjoeld, whose abridged[‖] account was derived from the official Reports of the Swedish physicians to the Royal College of Health, describes the commencement of the disease in the same manner.

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[*] Holst. pp. 16. 20. Schnurrer.

[†] Dissertatio Inaug. de morbo cutaneo luem veneream consecutivam simulante. Auctore C. F. Ahlander Upsaliae, 1806. p. 3.

[†] Dissertatio Inaug. sistens observationes in exanthema arcticum vulgo Radesyge dictum. Auctore Isaaco Vought. Gryphiæ 1811. pp. 8. & 17.

[‡] Kunst die Krkht der Menschen, &c.

[§] Medical and Surgical Journal, Vol. V. p. 421.

[‖] This Abstract was published at Stockholm in 1804.

According to these authors, the first or latent stage begins very much like a common febrile attack, occasioned by exposure to cold, moisture, or excessive fatigue. The patient complains of an itching sensation in the skin, * weight and flying pains in the limbs, stiffness in the joints, unusual aversion to exertion, and sudden faintness on the most trivial corporeal effort. Although these symptoms are so much the more insidious, that they in general actually appear after exposure to cold, or extraordinary muscular fatigue, yet they differ widely in this circumstance, that they do not, as in other cases, subside after they have continued for some time. On the contrary, after some days, or even weeks, especially if the patient be plethoric, the countenance assumes a remarkable redness, in which an extraordinary and insufferable heat is a striking peculiarity. At the same time, the inner part of the nose begins to swell, the nostrils are stopped, the uvula and tonsils are swollen and relaxed, so as to communicate the sense of a foreign body in the throat, to render the voice rough and hoarse, and, with the state of the nasal passages, to occasion great difficulty in breathing. It is by no means uncommon for the patient, at the same time, to suffer wandering pains of the joints, imitating rheumatism, which are aggravated in the night, and, towards morning, are relieved by a copious, viscid, and somewhat fetid discharge from the skin. "In this condition," says Schnurrer, "the patient may continue for years, when no particular cold or other external accident accelerates the development of the disease;" † and this, which may be denominated the latent stage, is wonderfully uniform in almost every variety of sex, age, physical aspect, and even country. The phenomena, however, which succeed, and which constitute the second or open stage, are subject to the influence of at least two orders of agents, viz. medical superintendence, and complete shelter from exciting causes.

The phenomena and progress of all diseases are modified by the treatment, or, to express the fact in more general and correct terms, by the circumstances in which the patient is placed, and by the various external causes to which he may be exposed. So is it with the radesyge.—"Unless the patient," says Dr Holst, "fall into the hands of an attentive and skilful physician, this indifferent health in which the first stage consists,

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* Holst.

† Geographische Nosologie oder die Lehre von den Veranderungen der Krankheiten in den verschiedenen Gegenden der Erde, &c. Von Friedrich Schnurrer, M.D. p. 440.

continues to increase at various rates, according to his age, constitution, mode of living, and other accidental circumstances." In the natural and unaccelerated course of the disease, the skin begins to be covered with scales, itchy pustules, or furuncular tubercles, which in different periods are converted into malignant ulcers. But, according to Schnurrer, and some of his authorities, this transition into ulcers may be accelerated by the effects of external violence, or cold and frost-bite. *

In the majority of patients, the skin of the face is affected before that of the person; the eruption consists of numerous small spots, or wheals, variously coloured, scarcely exceeding the size of flea-bites, somewhat elevated at the edges, sometimes disappearing, but returning in moist weather, always possessed of little sensibility, sometimes to such an extent, that, even when punctured, they are not painful. When these spots are broken, they either effuse a viscid fluid, and are quickly covered with scaly crusts, or they corrode the neighbouring parts, and generate not unfrequently incurable ulcers. †

The description which we have now given is general; but two varieties, or deviations from it, have been remarked. ‡

1*st*, In some patients, a dry efflorescence, which has been imperfectly described under the name of herpetic, is observed over almost the whole skin. This, which is at first distinct, soon becomes confluent, whitish like flour or bran, and, when this scurfy layer is removed, the skin appears denuded of its epidermis; this, however, being quickly regenerated, though in a morbid form, renders the skin thick, inelastic, irregular (squarrosa), and insensible.

2*d*, In the other variety, a copious scabby efflorescence, which seems, from the description, to be of a papular nature, somewhat humid and intolerably itchy, terminates in the same manner, by altering the cutaneous texture.

Whether we have the wheals, the scales, or the pimples, we uniformly find either simultaneously, or shortly after, many small bodies or tubercles of a copper or leaden colour, first of the size of a garden pea, and moveable under the skin according to Schnurrer, afterwards larger and more fixed. These are at first distributed over the face, and are particularly remarked in its fibro-cartilaginous parts; and, subsequently, they occupy the rest of the person. It is curious to remark, that the skin of the face seems to be always sooner, more seriously, and more completely diseased than that of any other region. The skin of the forehead becomes thickened, wrinkled, and puckered; the eyelids swell, are inverted, and surrounded with a rose-coloured or dark-leaden circle; the cheeks swell; the lips become thickened, indurated, and retracted; the auricular cartilages are somewhat convoluted; and the whole countenance assumes an exceedingly shocking and frightful aspect. But this disorganizing process is not confined to the facial skin; for, in the mucous covering of the uvula, velum, tonsils, palate, and fauces, the same, or analogous changes, take place. These parts are occupied with spots and tubercles, which quickly pass into bad ulcers.

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* Geographische Nosologie, ubi supra. † Holst, p. 18. ‡ Holst, p. 17.

The tubercles of the skin having continued for some time to form scales and crusts, gradually increase in size, and ultimately assume the ulcerative process, providing the patient live a sufficient time. The intermediate spaces of the skin become as hard as leather, and so insensible, that, according to some, the puncture of a needle cannot be felt.* The hairs drop from the eyelids, eyebrows, &c.; and in some severe cases, the unguinal phalanges of the fingers and toes are destroyed, and removed by the ulcerative and sloughy process. Great constitutional irritation uniformly accompanies these changes; the febrile state with which the original formation of the tubercles was attended, ultimately becomes a well-marked hectic; and the patient sinks under the usual symptoms of general consumption.

The description which we have here attempted to give of the radesyge, applies, in its general features, and with a few exceptions, to the form of the disease as it occurs in almost all the countries of the north of Europe, which in ancient times were known by the name of Scandinavia. But in particular situations, varieties certainly occur; and, according to the geographical or local habitation of the disease, its appearance is not a little modified. Amidst the vague and sometimes contradictory accounts which have been given us by many different observers and authors, it is exceedingly difficult to discover the characteristic or appropriate features of the disease, and to trace, through the various disguises which it certainly assumes in particular circumstances, the distinguishing and unequivocal symptoms by which it is to be recognised. Some authors, for example, as Holst, contend, that the scaly eruption chiefly characterizes this malady, but that there is a great affinity between the wheals and tubercles on the one hand, and the scales on the other, in which the former are prone to terminate. This writer, who seems somewhat indignant that neither Mangor nor

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* Schnurrer, p. 441.

Callisen, nor Sprengel, nor Münk, nor Vought, nor Cederschjoeld, had distinguished the scaly from the tubercular eruption, further thinks that the scaly eruption ought not to be viewed as the sole characteristic; but, particularly in the more advanced stage of the disease, that there are either scales alone, or scales mingled with tubercles; on which account he deems it convenient to divide the disease into two species or varieties rather, a scaly and a tubercular form. Some of these varieties are obviously peculiar to certain situations; for, according to Arboe, the scaly eruption is not very prevalent in the eastern provinces of Norway; while, in the western and northern parts, the disease, which he names spedalskhed, appears in the form of cutaneous knobs (noduli) or tubercles, covered with thick whitish crusts.

Some of this misapprehension might, we think, be avoided, by trusting less to the mere external form of the eruption, and reflecting more on the pathological changes which take place in the skin. All external characters of this kind should be employed merely as the means of observation and description,—as affording, in short, a general and precise nomenclature, but not as the characteristic features of a distemper. We have had occasion to remark, in the course of such opportunities as have occurred to us, that the character of the eruption was modified, not so much by the nature of the disease, as of the part of the skin in which it appeared. We have seen, for instance, in the same eruption, tubercles on the face, pustules on the trunk, and scales and crusts on the extremities; we have observed tubercles on the posterior part of the body, and pustules on the anterior surface; we have seen vesicles on the interior surface of the extremities, and papulæ, or small pustules, on the exterior surface; and there are few, perhaps, who have had occasion to be familiar with cutaneous disorders, who could not augment considerably this list of compatible eruptions. The dispute, therefore, concerning the tubercular, or scaly or crustaceous nature of the radesyge, is of very little consequence; and it would certainly be infinitely more important to observe in what regions of the skin, and at what periods of the disease, it was tubercular or scaly respectively.

With regard to the pathological changes which take place in the skin, we remark, that every tubercle is a new growth in the thickness or substance of the corion, or true skin, and may, in its progress, proceed either to the cellular and interior surface, or to the cuticular and external surface of this membrane, or to both at once. In the first case, it very often produces a bad and tedious suppuration of the subjacent cellular membrane, and imitates the phenomena of the furuncle; but while a bloody or sanious matter is discharged by one or more small openings, the original tubercles remain little changed in the skin. While this process is going on at the interior surface of the corion, the function of the exterior one is much altered. In the healthy state, there is reason to believe that the minute vessels of this surface secrete the thin semitransparent membrane called the cuticle; but when a tubercle is formed, these vessels change their action, and generate a thickened, opaque, and unhealthy layer, which never adheres to the corion, but is constantly removed by the rapid and successive formation of unsound cuticle. In this manner, scales are uniformly found to accompany tubercles, and, more especially, if these tubercles do not produce a suppuration in the surrounding parts.

We cannot assign any reason why the corion of the face should be more prone than that of any other part to the tubercular eruption; but it is remarkable, that almost all the tubercular affections are limited to this region; and in the few instances of tubercles occurring at the same time in other parts, those on the face are greatly larger and more considerable than in any other part of the skin. Acne, sycosis and lupus, are almost never found beyond the face; and in the cutaneous affections which occur after syphilis, or the injudicious use of mercury, while we very generally see tubercles on the countenance, we never find them on the person, but either a papular, a scaly, or a vesicular eruption.

We know not whether these desultory observations shall tend to explain any of the phenomena of the radesyge; but they appear at least to prove, that the pathologist should attend not so much to the tubercular or scaly form, as to the points of the skin at which these forms of cutaneous disorganization appear. So far as can be gathered from the information now before us, the peculiarity of the radesyge, in this view, consists principally, first in the affection which takes place at the point of union between the cutaneous, mucous, and fibrous textures, viz. countenance, ears, lips, nostrils, palatine velum, throat, &c.; and, at a later period, in the corion becoming diseased in those parts where it approaches very near to the fibrous texture, or where the bones are covered by little except the common integuments. We shall not, however, indulge in further remarks of this kind, which the imperfect nature of the facts in some points may render premature or erroneous, but proceed to notice, very briefly, the topographical distribution of the radesyge.

The Scandinavian peninsula, which constitutes the countries of Norway, Finmark, Lapland, and Sweden, is the region in which the radesyge seems to prevail in its greatest purity and perfection, and of which it appears longest to have retained the undisturbed possession. Almost all the western coasts of Norway, but particularly the vicinity of Bergen, seem to have been long infested with it. We cannot pretend to assign the precise date at which this cutaneous malady first became prevalent; for, although it is stated that the hospital of Bergen, named the House of Saint George, which is mentioned as existing in the thirteenth century, was chiefly filled with leprous patients, yet the want of correct descriptions of the symptoms prevents us from admitting that this certainly was the radesyge. We are, for the same reason, doubtful how far it is right to infer the existence of this disease, from any vague references to lazarettos and leprous patients which are found in various of the early Danish authors; for, as we shall subsequently show, the observations recorded by physicians are too few, and the few that we have are too vague, to be received as unquestionable testimony. It is much to be regretted that Pontoppidan, who has been at so much pains to explore and ascertain the natural history of Norway in general, has however contented himself with exceedingly scanty and limited notices on this particular subject. After some observations on the insalubrious nature of the air of the diocese of Bergen, which he ascribes to the fogs and humidity of the sea-coast on the west side of File-Field, he informs us,—

"Among the diseases which mostly appear in the diocese of Bergen, which is the most unhealthful spot in all Norway, I shall first take notice of a kind of scab, or itch. This is chiefly found among those that live along the coast, occasioned, probably, by eating great quantities of fat fish, and especially the liver of the cod. This is properly a *scabies scorbutica*, which may be called a leprosy, but not so infectious as the Oriental lepra; for married people live together many years; and the healthy is not infected, though the other party has it. But if they have children, they sometimes take the infection, though not always. This distemper generally lies in the blood a long time before any eruption appears; at last it breaks out in ugly boils on the face: they are then generally sent to hospitals erected for that purpose, of which there is one at Bergen, and another at Molde in Romsdalen. Our physicians are of opinion that this disease may be cured in young people; but though they have often attempted it, I do not find that any one has been thoroughly cured, without some remains of the distemper. This may be said, however, that when they get tolerably well, they do not confine themselves to the regimen that is prescribed them so punctually as is required." *

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* The Natural History of Norway, containing a particular account, &c. translated from the original Danish of the R. Rev. Erick Pontoppidan, Bishop of Bergen, &c. pp. 261, 262.

The Bishop goes on to remark, that the leprosy of Bergen and its vicinity corresponds in every respect with that of the Feroe Islands, as it was described, about a century before, by Lucas Jacobsen Debes, the pastor of Thorshavn, in his account of that division of the Danish kingdom; and, on the strength of this resemblance, he quotes at large from that author the description of the leprosy, to serve instead of any further account of his own. As we shall have occasion to speak of Debes when noticing the radesyge of the Feroe Islands, we shall not press him into the service at this part of our subject.

Such is the account of the radesyge of Bergen and Western Norway in 1751, by Pontoppidan, and in which, as we shall have occasion to see, he follows the physicians of the middle ages in the vulgar error of believing the Arabian leprosy extremely infectious. The deficiencies in the history of the disease in the same district, were, however, ably supplied by Dr Bachner, who, about thirty years after, described it with great minuteness and precision. As we have already given the substance of this author's observations in the course of our general description, which applies chiefly to the Norwegian form, we shall merely refer our readers to the original Memoir, which is found in Hensler's Excerpta.*

Dr Böcker of Upsal, who visited this city in 1809, described, in the 5th volume of this Journal, the radesyge as he had observed it in the north of Sweden, and the contiguous parts of Norway. His history of the disease, though short, is perhaps the most perfect, precise and autoptical, with which we are acquainted. By the north of Sweden, we conceive, he means the provinces of Angermania, Jemptia, Medelpadia, Helsingia and Gestrikia; as he subsequently acknowledges that he was unacquainted with the nature or degree of prevalence of the radesyge on the west coast of Sweden, which evidently refers to the promontorial tract denominated Gothland. We do not recognise any very conspicuous peculiarities in the radesyge of these northern provinces, unless the infrequency of the affection of the countenance and hands be deemed one. In the mucous membranes, it commences with bright spots, or aphthous wheals; and the tubercular eruption is never observed, while the corion or true skin is affected with wheals, or tubercles of a copper or livid colour; and is uniformly sooner and more seriously diseased at those parts where the bones are covered by it alone; that is, where the cutaneous and periosteal textures approach each other.

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* Vom Abendlandischen Aussatze im Mittelalter, &c. Beylage 3.

In the southern parts of Norway, what are vaguely named scabby pustules are more frequent than the scaly form;[*] and there are likewise observed cutaneous boils or tubercles, which soon pass into brown ulcers with jagged edges, and discharge only a bloody sanious fluid. In the more northern parts of Norway, the scaly eruption is more prevalent; and, besides it and the tubercles, the skin is occupied by numerous rhagades and fissures. On the seacoast, again, the tubercular eruption is more usual; while in the inland regions, as Teelmark, Leerdalia, Oesterdalia, Gulsbrandtia, the scaly and scabby eruption is most prevalent.[†]

On the eastern side of that division of the Baltic which has been named the Bothnian Gulf, there is situated an extensive tract between the seacoast and the southern or Finnish division of the Olonetz mountains. This chain, which seems to be but imperfectly known, is connected, at its northern and western extremity in Kemi-Lapmark (about 67° north lat.), with the central range of the Scandinavian peninsula. From this spot it proceeds slightly to the east, but principally to the south, to within 60 miles of the south-west shores of the White Sea; where it divides into two ranges, one of which proceeds almost straight south, towards the Ladoga and Onega Lakes; the other, following a south-western course, divides the peninsular territory lying between the Gulfs of Bothnia and Finland, in two equal parts, Finland Proper and Ostrobothnia. In this latter district, the radesyge has been long a prevailing malady; and although the more northern and maritime parts of it, as the parish of Cronoby, &c. seem to have been most noted for it, yet no part was entirely exempted from the disease. Isaac Udmann, a native of this district, describes it as it usually appeared in Ostrobothnia in 1763, in the following terms.

"Moveable indolent tubercles, of a livid-red colour, fixed to the solid parts, especially in the forehead, cheeks, arms, thighs, hands; but tubercles somewhat yellow or livid in the mouth, palate, fauces, and basis of the tongue. Ulcers destroying the nostrils; tumors in the margins of the external ears; thickening of the lips; hands and feet much swollen and inflamed. In some patients, not in all, we found extensive spreading ulcers or fissures penetrating the substance of the skin, with humid, callous edges, often bleeding when touched, but in other respects without pain. In all the patients that I saw, the tubercles or knobs (nodi) were wholly destitute of sensation; but the contiguous parts were very itchy."[‡]

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[*] Schnurrer, p. 440. [†] Idem, p. 441.

[‡] Amœnitates Academicæ, Vol. VII. p. 97.

Although it is not much more than half a century since the radesyge was common in Ostrobothnia, yet, so far as we can ascertain, it seems either to have entirely disappeared, or to have become so rare as to escape notice. This province has been lately visited by several travellers, to none of whom any traces of it seem to have occurred. Neither Dr Clarke, who travelled in 1799, nor Von Buch, who was in Ostrobothnia in 1806–7, make any mention of this malady; and if it had been remarkably prevalent, they surely would not have failed to notice it. Another circumstance not entirely without interest, is, that after all the research we have been enabled to make, we cannot discover that the radesyge, or any thing like it, was ever found in Lapland. We cannot indeed assert, that it never existed or occurs in this part of Scandinavia, because our evidence is merely negative; but, if it had ever been remarked in Lapland, we can hardly suppose that it should have escaped the close observation of the numerous naturalists and travellers by which this country has been at various times visited and described. Neither Scheffer, in his early description, nor the missionary Canute Leems, nor Linnæus in his Lachesis Lapponica, all of whom wrote expressly on the Laplanders, the two latter from personal observation, mention such a distemper, although we find in them sections on the diseases of the natives; and when we examine the descriptions of more recent travellers, as Signor Acerbi, Dr Edward Clarke, and Von Buch, we are left equally uninformed on the subject. If this could be ascertained, it would be extremely interesting to take a comparative view of countries which are contiguous, but in which we find such a difference, and to consider the physical or other circumstances of each, as they favour or check the formation of the radesyge. Upon this part of the subject, however, it would be unsafe and difficult for us to enter; and we conceive we shall serve the cause of medical science more effectually by noticing the circumstance, and suggesting the investigation of its nature and cause to others who have the requisite opportunities, than if we wrote an entire volume of conjectures, which we have the means neither of correcting if erroneous, nor of verifying if well-founded.

In Iceland, we are assured, on the testimony of Horrebow, Petersen, Uno Van Troil, Olafsen, and lastly Dr Holland, that the leprous disease, which in Norway is named Radesyge, but in Iceland Liktraa, Spitelska, or Holdsveike, had prevailed for a very long period. Among the notices of the natural history of this malady given by these writers, the fullest is perhaps that of Petersen; but the best and most satisfactory is unquestionably that by Dr Holland, which was published in the 8th volume of this Journal, and to which, as our limits will not allow us to repeat quotations, we must at present refer our readers.[*] We find some difficulty in reconciling the descriptions of these two authors, chiefly at the outset of the disease; for, in the accounts of its general career and ultimate termination, they correspond with great accuracy. The most remarkable peculiarities in the tiktraa, or Icelandic form of the Northern leprosy, as described by Dr Holland, are the commencement of the disease by indolent tumours of the face and limbs, attended by swellings of the salivary, inguinal, and axillary glands, and that no mention is made of an introductory fever.[†] Petersen, however, describes the malady as being preceded for a long space, sometimes an entire year, by putrid breath, an appetite for sour, half putrid and unwholesome food, and vehement thirst. The patients are indolent and drowsy; they are put out of breath by attempting to ascend a declivity; they complain of weakness in the limbs; they shiver on coming out of a warm apartment into the open air; their cheeks and lips assume a brown or blue colour; the senses of smell and sight are weakened.[‡] The subsequent progress of the disease, both in Petersen's and Dr Holland's account, seems to be entirely similar to that of the Norwegian form, as it has been already sketched.

We have already alluded to the similarity, or identity rather of the Norwegian radesyge, and that of Feroe Islands, on the authority of the Bishop of Bergen. We are not acquainted with any recent observations which might confirm or refute this opinion; for it would appear that the distemper is either very rare, or completely exterminated from the Feroe islands. It may not, however, be uninteresting to our readers, to be presented with a short extract from a very rare work by a clergyman, who resided for many years, and who may therefore be presumed to have had pretty good opportunities of knowing at least the extent to which it prevailed. Lucas Jacobsen Debes, M. A., and Provost of the Churches in these Islands, published, in the year 1670, a history, natural and economical, of this part of the Danish dominions; and, in speaking of the charitable institutions and provisions for the poor and diseased, gives an account rather particular, considering the circumstances, of the form of leprosy to which the natives were liable. We give, at the same time, as introductory, a few of Debes's observations on the physical nature of these islands.

" The islands of Feroe in themselves are only some high rocks, arising out of the wild sea, and covered with a portion of this earth. For Feroe doth consist of many islands that are high hills, of hard stone, strangely divided from each other by deep and rapid streams of water. And that the said hills or mountains might be useful to mankind, and the Lord's holy name, in this latter age of the world, be praised by true Christians in the midst of the stormy sea; it hath pleased the Divine Providence to cover the valley between the mountains and the sides of the hills almost everywhere with two feet thick of earth; somewhere thicker or thinner according to the nature of the place; whence doth grow not only abundance of grass for cattle, but also corn for the maintenance of man. Wherefore if the land, as other even countries, could be cultivated and inhabited, many thousands of men, proportionably to the greatness and number of the islands, might there live and subsist. But the people dwell only by the sea-side, where it is lowest and most convenient for them to get to sea with their boats and ply their fishing; there being almost every where high promontories, whence nobody can come down, nor get up; though there be some dangerous and terrible places, whence they also launch out their boats to sea to go a fishing; where they must have strong ropes in the boat, that those on land may sometimes help the people out, if they are in any danger; some also, who are the most, live in creeks, inletts and havens, that are numerous, convenient, and good for seamen to lay in their ships in time of danger." pp. 1, 2.

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[*] Med. and Surg. Journ. Vol. VIII. p. 201.

[†] Travels in the Island of Iceland, during the summer of 1810, by Sir G. S. Mackenzie, Bart. Appendix, No. 1. by Dr Holland, p. 408. 4to.

[‡] Petersen apud Schnurrer Geographische Nosologie, p. 442.

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" As for the leprosye itself, I would not omit for the reader's sake to mention something of its nature. p. 310.

" Physicians write, that there are three sorts of leprosies; namely, *Tyria*, from the serpent *Tyrus*. In this leprosy, the patient's skin is soft, and sometimes falleth off in shells, and they have many spots and white wartes thereon. The second is called *Alopecia*, by reason the hairs fall off as those of a fox; he that is infected with this leprosy hath a red face, and his beard and eyebrows fall off. The third sort is called *Elephantiasis*, from the elephant, to whom they become like in their skin; the body and face of him that is infected with this disease is full of knobs.*

" The lepresie wherewith they are troubled in this country is usually elephantiasis, for the face and limbs of almost all the infected are full of blue knobs, that break out sometimes as boyls, whereby they look very deformed in the face, being besides all hoarse, and speaking through their noses; the sickness taketh them most in spring and autumn, and then many of them dye thereof. I find the cause of this leprosy to be the air and dyet; for as we said above, here is usually a pretty cold and moist air, which usually causeth the scurvy to those that lead a solitary life, and this hath a great affinity with leprosy. Besides the meat of all, specially of the poorer sort, is half rotten flesh and fish, all their nourishment in summer being likewise fresh fish and sweet milk without any salt; wherefore he that is not of a strong and good complexion may easily have his blood corrupted, the sickness gnawing then itself through the body before it breaketh out; and when any one is so infected he may easily give it to another, that is of the same complexion with the sick. Now, that disease acting a great while in a man before it breaketh out, it happeneth that many that think they be clean on both sides, do marry together; and yet afterwards the one is found to be infected. God and Nature deals wonderfully with such people in their marriage, for amongst the children they beget, some clean, and some unclean. I have three examples in my parish of women that have been unclean, and have brought forth many children, whereof most are married, none of them being yet found to be unclean; wherefore the inhabitants take but little care in their wooing, whether their parents have been clean or no. I have also an example that the father hath been unclean, and yet the children healthful. It has also been taken notice of, that two living together in marriage, though the one be found infected, they live together as before, as long as one doth but murmur of it till the Magistrate doth separate them, and yet the sound remaineth uninfected; whereas another is often taken with the disease by a very little conversation. Here are examples yet before our eyes, that poor cripples, clean but helpless, have been put among the sick in the hospital, eat with them, converse daily with them, and are not infected in the whole of their lives. What is this? but that God confirms the truth of his word, taking pleasure in them that live in a just wedlock, and wander in lawful ways, putting their hopes in him, that neither fire nor water, contagious disease, nor dangerous pestilence, shall hurt them." * p. 314.

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* It may not be useless to remark, that Debes derives his medical information from the writers of the middle ages, or who appeared previous to the revival of letters in Europe, and has almost translated the following passage—" Præterea notandum," says John of Gaddesden, " quatuor esse lepræ species. Prima vocatur Tiria a Tiro serpente propter squamas et excoriationem, quam facit; secunda species dicitur Alopecia παρὰ τῆς ἀλώπεκος, quod est vulpes,—propter depilationem similem depilationi vulpis; tertia vocatur Leonina propter ferocitatem similem ferocitati leonis; quarta dicitur Elephantia propter tuberositatem et grossitiem innaturalem similem elephanti, in quo est crassities corporis informis." *Rosa Anglica*, p. 1070.

The last region of northern Europe in which we have occasion to trace the radesyge, is the islands of Zetland; where, it would appear, it was singularly malignant and violent about 60 or

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* Feroe Reserata; that is, a Description of the *Islands* and *Inhabitants* of Feroe, written in Danish by Lucas Jacobsen Debes, M. A., and Provost of the Churches there. Englished by J. S. Doctor of Physic. Printed by F. L. for William Iles, at the Flower de Luce in Little Britain, over against St Bartholomew's Gate, 1676. This author dates his preface from his Pathmos in Thorshaven, the 12th March, 1670. According to Petersen, who visited these Islands about 1762, so far as we can ascertain, this disease (the elephantiasis) had entirely disappeared, and Petersen attributes this to the change in the mode of living; for they had then ceased to carry on their fishing, and to live on whales flesh and bacon, and had directed their attention to agriculture, and lived on corn.

70 years ago, but from which there is much reason for rejoicing that it has lately completely disappeared. We have indeed had occasion to see partial degrees of a cutaneous affection, exceedingly like, if not entirely the same, in natives of these northern regions. A few years ago, a poor man from Lerwick got his arm amputated in the Royal Infirmary of this place, in whom the entire skin of the member was affected with a scaly and papular eruption; was singularly hard, tough, and inelastic, with extensive sloughy ulcers of an exceedingly malignant and untractable nature. The arm had been of no kind of use, but rather a loathsome burden to him, for the space of ten or twelve years, during which time he had been affected with this malady. The instance to which we allude was indeed quite local, occurring merely on the skin of a single member; but it bore no resemblance either in its history, progress, or appearance, to any other cutaneous affection that we know of; and certainly came much nearer to the appearances of the radesyge, than any thing that we ever remember to have seen. Examples of this local affection, we are informed, are not uncommon in these islands, and in the north of Scotland; but there is no record of the northern leprosy having been seen in its perfect form in these parts later than the year 1742. *

The most remarkable circumstance, perhaps, in the topographical distribution of the radesyge, is its occurrence in the southern extremity of the peninsula of Jutland. The dutchy of Holstein, which is separated from south Jutland by the river Eydor, consists of four provinces; of Dits or Deutchmarsch, Wagerland, Stormarsh, and Holstein Proper. The first of these divisions, which is most northern, is situate between the river Eydor and the Store, which, being joined by several less considerable streams, as the Schwale, the Bottenbeck, the Crempe, &c., falls into the estuary of the Elbe, a little to the north of Gluckstadt. This district, which is further bounded on the west by the German Ocean, is somewhat low, marshy, and sterile on the seacoast, and, interiorly, is said to be a moorish and sandy tract at the best. We cannot pretend to say how far circumstances of this nature may influence the production and propagation of the radesyge, or Deutchmarsch sickness, as it is there named; but, on the authority of Louis Augustus Struve, this disease has been so general in Deutchmarsch during the last twenty years, at to attract the particular attention of medical observers.

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* Statistical Account, by Sir John Sinclair, Vol. XII. p. 363. Vol. XX. Walts and Sandness.

Dr Struve has divided the cutaneous disease of Deutchmarsch into four stages, each of which he has attempted to characterize by appropriate symptoms; but, as he admits, in the conclusion of his description, that these stages are never found in nature so distinct as he has represented them, we think we may with impunity spare our readers the labour of a detailed account. This is so much the less requisite, as it bears a resemblance so close to the Scandinavian form of the malady, that much tiresome repetition would ensue from a particular description of the symptoms and progress of the disease. It seems to come on in the same manner as we have already shown, with febrile symptoms; and its career seems to be very similar to that of the Norwegian or Swedish forms. In both, we find the shining, swollen, and earthy appearance of the face—the destruction of the hair, eyebrows, and eyelashes—the thickened and discoloured nose, the tuberculated tongue, the swelled hardened lips, and morbid state of the voice and respiration—which these changes produce. That the Holstein and Norwegian are varieties of the same affection, Dr Struve shows very distinctly; and his opinion is supported by the result of the investigations of the College of Health at Kiel, who were directed in 1801, by the Government of the country, to inquire into its nature and origin; and who ascertained, that it had actually been imported into the Dutchy of Holstein by Norwegian labourers, some time previous to 1786. Our author's comparison, however, is embarrassed and confused, with an attempt to prove that the Deutchmarsh disease, the radesyge, and the Arabian leprosy, are merely various degrees of the same distemper; and it is certainly not a little amusing to find Dr Struve disappointed in not seeing the *alopecia*, the *panni*, and the *sahaphati* of the middle ages, and repeating such servile errors as the increased disposition to sexual intercourse with which the unfortunate lepers have been falsely charged.

Although the details which we have now attempted to give our readers, are derived, with considerable pains, from the most authentic sources, and are as full and ample as our limits will permit, yet we are not quite certain that they will communicate a clear and satisfactory idea of this singular disease. It is in truth difficult to conceive any thing so puzzling as the contradictory, and sometimes inconsistent opinions, which have been given of its nature by the Swedish physicians, and which would probably have been in like manner given by any other class of physicians. For it cannot be denied, that many circumstances tend to perplex the discrimination of the observers; and the variable nature of the disease itself, with the want of a general, precise, and uniform nomenclature, has contributed, in an essential degree, to confuse and darken the scattered rays of light which have been occasionally thrown on the subject.

The aspect of the symptoms, taken at different periods of the disease, and perhaps under some variation of circumstances, has caused it to be viewed by different authors as allied to three different, but equally formidable maladies,—scurvy, lues venerea, and the Arabian leprosy; and, for varieties of these, it would appear that many authors have actually taken the radesyge. The discrepancy of these opinions is, however, an evidence against the justice of any one of them; and as their respective advocates have adduced, in favour of each, those facts only which particularly suited his own hypothesis, so we are disposed to think, that their force has been thus, as it were, individually neutralized; and, what was zealously meant to prove that each was right, has in our opinion shown that all were erroneous. The more, in truth, that we have read on the analogy between this disease and any of those which were mentioned above, the less are we disposed to view it as resembling any one of them; and we are more than ever inclined to consider it as an affection of a peculiar and distinct nature.

The least probable opinion of the three is certainly the first—which is entertained by Moeller; * for we are by no means prepared to admit, that the relief afforded by vegetable and acid aliments in the scurvy and radesyge, demonstrates their identity. We cannot deny that both diseases take place in very nearly, often completely, the same circumstances; but we can assuredly conceive two widely different morbid states of the system, to arise under the operation of the same remote causes; and the best informed observers, therefore, who are most intimately acquainted with the appearances of the radesyge, have latterly completely exploded this opinion. Among these, we may mention Gislesen and Mangor, two Danish physicians of considerable eminence, whose opinion is supported by the authority of ocular testimony; Ahlander, Vought, and Callisen, the distinguished professor of surgery in the University of Copenhagen. But this notion has been most decidedly combated by Dr Holst, who gives, what we think the subject scarcely deserves, a diagnosis drawn from the course of the disease, the order in which the symptoms follow each other, the aspect of the ulcers, and the parts in which the spots and affections of the skin occur. (pp. 41, 42.)

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* Todes Medic. Chirurg. Journ. 5 Bd. Hft. Kopenh. 1800. p. 45—61. See also Hensler's 5th Appendix (Beylage) to his Excerpta, in his Treatise on the Western Leprosy.

We doubt whether we can dismiss the question of its affinity or kindred with syphilis in the same summary manner. The verisimilitude of this view seems to depend chiefly upon local circumstances; for, in certain districts, the appearances unquestionably simulate the secondary symptoms of lues venerea. In Sweden, particularly, the radesyge has been long known by the name of spurious or degenerated syphilis (*urartad venerisk Sjukdom*); * and some have even asserted that it originated from a genuine venereal taint. Lindbergsson † is the author who has most strenuously advocated this opinion; but we cannot discover that he has advanced any positive and unequivocal proofs of it—any facts which might not be evaded or rendered doubtful, by reason of the variable nature of the disease to which he thinks the radesyge is allied. All that we have lately learned, in short, concerning the nature of lues venerea, has thrown so much doubt and ambiguity on the subject, that it must be very unsafe, in the present state of our knowledge, to liken any disease whatever to it, or to consider it as capable of appearing in a spurious form in situations which forbid its being viewed as genuine. It may be indeed alleged, that these circumstances prevent us from obtaining any but negative evidence; that is, evidence which, while it does not show the radesyge and syphilis to be the same, does not, however, prove them to be different. To this ambiguous condition of pathological evidence, we may remark some resemblance in an opinion which has been, and perhaps is still, entertained by many of our countrymen, regarding the nature and origin of a disease not unlike, which is endemial in some districts of Scotland; but we believe there are but few professional men whom nature has taught to observe and interpret her more complex and minute motions, who would, in the present day, consider the identity of the sibbens and lues venerea ‡ as an established and undoubted fact. It is the duty of the judicious physician, in cases of this kind, to suspend his judgment until a greater number of irrefragable arguments shall justly influence his mind to form a decided opinion.

These reflections will supersede the necessity of examining the justice of the notion, that the radesyge is a hybrid disease, the offspring of scorbutus and lues venerea, which we think can never be admitted on any account; but we are met by a doctrine which is greatly the most general and plausible, but which we think is still deficient in proof. We are not unaware that, when we consider the affinity of the radesyge and leprosy as somewhat questionable, we have against us a number of very considerable authorities. We have not leisure or space to adduce the opinions of all these writers; but, as a fair average specimen, we may mention, 1*st*, Debes and Petersen; 2*d*, Horrebow and Pontoppidan; 3*d*, Uno Von Troil, and his friend the Chevalier Bach; and, *lastly*, Dr Edmonston, and perhaps some others, as Holst, Struve, &c. Almost all these authors have looked on the radesyge as identical with the tubercular or Oriental leprosy, the elephantiasis of the Greeks. But as it never occurred to them to doubt this identity, and as it was assumed, therefore, rather than shown to be the case, so they have been at no pains to prove the affinity, and have left us no reason but mere assertion for our faith. Some authors even, who have been willing to relinquish this opinion, have nevertheless been inclined to consider the radesyge as at least a variety of the tubercular leprosy; and, in so doing, they have perhaps rendered the subject more confused and intricate than it was before. Philip Gabriel Hensler, a learned and laborious German, seems to have been aware of the difficulties attending the subject. He has compiled and written a most elaborate Treatise on the Western Leprosy of the Middle Ages; and has shown unwearied research, and unceasing collation, in the investigation of the matter. He has, however, left us as much in the dark as ever regarding the most important and obscure part of the subject; for, after a tedious comparison and history of symptoms, he concludes with considering the Arctoic leprosy (*lepra Septentrionalis*), or the Spedalskhed, the same as the tubercular or Arabian leprosy (*lepra nodosa*, *lepra Arabum*, der knollige Aussatz); and again, the Arctoic leprosy (*lepra Septentrionalis*), or the spedalskhed or radesyge, as identical with the scaly, scabby, or Grecian leprosy (*lepra squamosa*, *lepra Græcorum*), or even the fish-skin disease (*ichthyosis*).[*] Whoever is familiar with the appearance of the Greek leprosy, and the fish-skin eruption, must be aware of the erroneous view which this opinion of Hensler affords. No two diseases, in truth, can be more opposite than the tubercular or Arabian, and the scaly or Greek leprosy; and yet this excellent German likens the radesyge or the spedalskhed to both in a single breath. This mistaken view, for such we conceive it to be, seems to have arisen from the Doctor's habits of research among the worthies of the middle ages, with whose doctrines and distinctions he seems to have been so long familiar, as to imbibe them completely without questioning their truth. It is in the works of Theodoric, Bernhard Gordon, and Joannes Anglicus of Gaddesden, where the *tyrias* and *elephantia* are constantly mentioned as different species of the same distemper, that we must look for the cause of Hensler's want of discrimination. If he had broken the association of these names, and viewed them as not necessarily, but accidentally connected, both with each other and with leprosy, we are persuaded he would not have thought of the inconsistent identity which we have above noticed.

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* Svenska Läkare—Sallskapets Handl. Tom. II. & III. passim.

† Svenska Läkare Sällsk. Handling, 2d Bd. 1 Hft. p. 118-122.

‡ Observations on Morbid Poisons, by Joseph Adams, M. D., &c. p. 186.

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[*] Vom Abendlandischen Aussatze im Mittelalter nebst einem Beitrage, zur Kenntniss und Geschichte des Aussatzes. Hamburg, 1794. 12mo. 375. 376. 390.

To those who are acquainted with the precise nomenclature, but in some respects erroneous arrangement, of Drs Willan and Bateman, it may seem singular that Hensler has been followed by Professor Sprengel, whose arrangement gives us to understand, that he considers the scaly or Greek leprosy, and the tubercular or Arabian, as different species of the same genus; and, by a somewhat unaccountable nosological manœuvre, the latter is said to occur in three forms; the *first*, the Mosaic or white; the *second*, the Grecian or scaly; and the *third*, the Arabian or tubercular. Of the latter, he enumerates no fewer than five varieties, of which one is the Norwegian or radesyge, and the Crimean, or what has been named the Tauric or Tartarian leprosy. This malady, which has been described by Gmelin, Falk, Gueldenstadt and Pallas, under the name of Crim distemper or leprosy (Krimmische Krankheit, Krimmische Aussatz), in consequence of its prevalence in the province of Taurida, certainly approaches much nearer to the radesyge in appearance than the Oriental or tubercular disease; but, as the description given by these travellers does not appear to us to prove this affinity completely, we cannot avoid thinking that Professor Sprengel has not shown sufficient deliberation in framing his conclusions.

These observations have increased to such an extent, that we must hasten to a conclusion, by assigning the reasons which induce us to think that the Scandinavian radesyge is not homogeneous with the Oriental leprosy. It falls but rarely to the lot of medical men in this country to witness this hideous defœdation of the human skin; and it may be therefore supposed that we are but imperfectly qualified to point out the characteristic differences between it and other cutaneous diseases. But we had occasion, several years ago, to see an exceedingly distinct and perfect specimen of it, an account of which, we believe, was then published in one of the London periodical works;* and Mr Lawrence has since described in the Medico-Chirurgical

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* Medico-Chirurgical Journal and Review, Vol. III. p. 361.

Transactions,* two examples which fell under his observation. From these cases, from the account of Dr Adams, and from the testimony of a particular professional friend who resided for many years in Madeira, where the tubercular leprosy is common, we are little inclined to admit the radesyge, as it appears at present in the North, to be of the same genus; and we think that *it is* not more closely allied to it than to some other eruptive diseases, particularly those cutaneous affections which occasionally succeed the primary symptoms of syphilis, or the introduction of mercury into the system.

1st, There is no proof that the Arabian, or true tubercular leprosy, as it appears in Madeira, the West Indies, &c. is at all contagious; for, in every stage of it, the lepers associate in the closest and most unrestrained manner with healthy persons, who never, on that account, become infected.† The opinions of the physicians of the middle ages on this point can scarcely be trusted with much confidence; nor can we admit as evidence, the remarkable story which Bernhard Gordon relates of the Countess and the Bachelor of Medicine;‡ for it could be shown very clearly, that many cutaneous affections of different kinds were denominated leprosy; and, above all, any obstinate, pustular, or scaly disease seems to have been considered as such, if it did not readily yield to the usual remedies; and, as is not uncommon, rendered the patient an object of disgust, merely by the unhealthy state of the skin. It would further appear, that these authors were in the habit of giving this name to some forms of lepra, ichthyosis, pityriasis and impetigo; and that many persons were sent to the lazarettos, who merely laboured under any foul disease of the skin, but were not affected with the characteristic symptoms of leprosy. That this was actually the case, will be admitted by every one who is acquainted with the descriptions of the requisites, if we may so express ourselves, of a leper or child of St Lazarus, as given by Gregory Horst, and some of those physicians who appeared towards the close of the middle ages. In short, we can discover no reason for considering the true leprosy contagious. The radesyge, on the other hand, is stated, on the most creditable authorities, to be highly contagious; and the utmost precautions are requisite to prevent the disease from being diffused, when it has once made its appearance in a district. The radesyge, however, is not equally contagious at all periods of the disease; and this seeming anomaly has led some authors to say, that it is in no instance communicated in this manner; but this difference has been satisfactorily explained by Drs Edmonston and Böcker, who observe, that the disease is most readily and certainly communicated by the matter of the sores, which are generated in the progressive advancement of the disease.

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* Vol. VI. p. 209,

† Observations on Morbid Poisons, p. 282, 233. 4to.

‡ Lilium Medecinæ, in Particula I. cap. XXII.

2. The observations of Dr Adams show, that the disposition to leprosy, if not the actual disease, is hereditary; and that it is in consequence of this latent diathesis, and the concurrence of certain external causes, that the disease is developed in the persons of those in whom this disposition exists. * We cannot, however, discover any thing of this nature in the history or formation of the radesyge, which seems to be so little under the control of the hereditary influence, that it has entirely disappeared in some situations, where the external causes have either become less powerful, or have entirely ceased to operate. †

3. The leprosy and radesyge differ very much in their progress, and in the morbid changes which take place; for the former is a tedious and chronic disease, continuing many years stationary after it has fully developed itself, in the form of tubercles, and without, in most cases, assuming the ulcerating process; while the radesyge proceeds with considerable rapidity from the tubercular to the ulcerating stage; and here particularly it resembles, and is liable to be mistaken for a syphiloid malady.

4. The circumstances which we have now enumerated as demonstrating a difference between the radesyge and the tubercular disease of the East, are by no means unimportant in establishing a line of demarkation; but they are very immaterial when contrasted with the effects produced on the genital system by the Arabian distemper. In all the cases, both in males and females, which Dr Adams examined, he found that the occurrence of elephantiasis uniformly destroyed the characteristic distinctions of sex if after puberty, and prevented their development if before. Not only were the functions, as it were, obliterated, but the texture of the organs seemed to be much altered and impaired. Nothing of the kind seems to take place in the radesyge; and if the functions of these parts are affected, it is evidently in consequence of the injury done to the constitution at large. We might add, though purely as an occasional occurrence, that the cornea is often injured, and the sight destroyed in the unfortunate lepers, while nothing similar is remarked in the northern disease.

Lastly, We may here remark, as connected with this part of the subject, the tendency in the radesyge to wear itself out, as it were, or, in other words, the possibility of its being cured in particular circumstances. It cannot be determined whether, at all periods since this malady was prevalent in the north, the patients were uniformly destroyed by it, or never attained any other degree of convalescence than merely an imperfect recovery, which might, at no remote period, be succeeded by a fatal relapse; but it is quite certain, that both in Sweden and Norway, and particularly in the dutchy of Holstein, according to Dr Struve, the symptoms have been completely subdued, and the patients restored, in many instances, to exceedingly good health. This fortunate change has in general taken place under the most entire antiphlogistic regimen, approaching almost to starvation, aided by the alterative and sedative effects of antimonial medicines, and decoctions of the diaphoretic woods. We are not inclined to lay much stress on these agents as remedial means; but we are certain that they are of infinite use in placing and retaining the patient in those circumstances in which a cure seems to be possible. It is the absolute quietude and shelter from causes of aggravation that are the true sanative means in this and some similar complaints; and, like the late investigations into the natural history of lues, they demonstrate the radesyge to be, in the same manner, susceptible of a spontaneous cure.

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* Observations on Morbid Poisons, p. 270-271. 4to. edit.

† Lucas Jacobsen Debes, Feroe Reserat. Petersen apud Uno Van Troil.

While we thus refuse to admit the radesyge to be either a relic or a modification of the true leprosy of the middle ages, we cannot pretend to suggest any other cutaneous or cachectic disease to which, either as species or variety, it may be referred. The perusal of the works which have been written on this subject has in truth convinced us, that of the great deal accumulated, little accurate or unquestionable information has been procured; and we regret that, in closing this article, we must ourselves remain in uncertainty as to the true nature of the disease. This state, however, is the least objectionable alternative, as it may show that something more must be done in studying the malady in its native *habitat*, and in examining the circumstances in which it more especially exists; while we shall be spared the necessity of acknowledging an error into which we should otherwise have been betrayed. To the future historian or observer of the phenomena of the radesyge, if these pages should by any accident claim a portion of his attention, we think the principal object ought to be to ascertain, or at least to procure, as satisfactory information as possible, regarding the following circumstances.

1. Is it hereditary and transmissible from parents to children? is it contagious and communicable from one person to another, and by what means? or, if neither, is it endemial, and depend-

ing for its formation on the external circumstances in which the patient may be placed?

2. Is it really not prevalent in Lapland and Finmark? and what are the peculiarities which prevent it from appearing in this part of Scandinavia?

3. Does it at present prevail in Ostrobothnia, the north of Sweden and west of Norway, in the same degree and form in which it used to be observed twenty, thirty, or fifty years ago?

These are not perhaps the whole of the ambiguous points relating to the nature of the radesyge; and it may be possible for a judicious pathological observer, whose natural sagacity is aided by the advantage of ocular testimony, to discover and ascertain many more; but certain we are, that these at least require to be determined before any opinion can be formed as to the character of the malady, and its resemblance or analogy to any other.

II.

A Manual for the Student of Anatomy, containing Rules for displaying the Structure of the Body, so as to exhibit the Elementary Views of Anatomy, and their Application to Pathology and Surgery. By JOHN SHAW. *Being an Outline of the Demonstrations delivered by him to the Students in the School of Great Windmill Street.* London. Burgess & Hill. 1821.

ANATOMY, like other sciences, may be studied either synthetically or analytically. Both methods of instruction have been pursued by its public teachers; and indeed it ought to be studied in both these ways by all who would cultivate it successfully. The lecturer generally pursues the former method; as it is found by experience, and indeed is obvious to common sense, that the student who approaches this science for the first time,—upon whose mind, as upon a *carte blanche*, it is the business of his instructor to produce the first impressions of the science with the greatest possible degree of perspicuity and accuracy, will be much less likely to be confounded and embarrassed by the prodigious multiplicity of objects which lie before him, when each is separately described and exhibited, and the different orders of parts of which the animal machine is composed, are systematically demonstrated as distinct from each other, than if they were presented to him in all the perplexity and apparent confusion of nature, and he were taught at once to proceed to trace the relative positions of parts which are all equally unknown to him,—the attachment of muscles to tubercles and processes never before offered to his observation, and the branches of arteries, veins, and nerves, whose trunks he has never seen, into unknown glands, viscera, and foramina.

The superintendent of the dissecting-room has a different task to perform. *His* pupils have passed, or ought to have passed, through the previous instruction of the public theatre, and have now to be familiarized with those parts in *combination*, which they have before seen dissected and artificially separated from each other. Mutual relations and connexions, and relative positions of parts, are the objects which *his* pupil aspires to be acquainted with, and which it is *his* business to assist him in unravelling. This knowledge, so indispensable to the scientific physician and surgeon, is no otherwise to be acquired than by pursuing the analytical method; anatomizing for himself the beautiful mechanism of the human frame; and watching, with jealous care, the successive development of its parts, directed by the experience of his instructor to the most approved methods of pursuing this laborious investigation.

In the WRITINGS of anatomists, the same difference of method obtains. The great majority of them are constructed upon the former plan; which is undoubtedly the best for forming mere works of reference, and good text-books for the public lectures. But it is highly expedient that the young anatomist, when he takes the scalpel into his own hand, should be provided with a book constructed on the opposite plan, presenting an accurate description of what he is to witness, in the order in which it is about to be presented to his notice; and giving him, at every turn, those monitory hints as to the method of performing his dissections, which every one who has ever engaged in such pursuits must have found to be highly useful, and almost indispensably necessary. It may be mentioned, too, among the advantages of this method of writing, that it forms the best sort of work for the perusal of the experienced anatomist, as it recals the objects of the science in the order in which they are associated in his memory, and is therefore free from the dulness and dryness of the formal systematic work. It presents, as if depicted before him, those views of anatomy to which he has been most accustomed, and which he is most likely to require, because they are of the greatest practical use. Those who have read the work of Mr Burns of Glasgow, on the Anatomy of the Head and Neck, or that of Mr Colles of Dublin, on Surgical Anatomy, will be prepared to admit the correctness of these remarks. We might refer the reader to various other specimens of the advantages of the analytic method; but we shall content ourselves with mentioning the volume before us, of which it is now time that we should speak.

We must do Mr Shaw the justice to state at once, that the remarks which we have just made on the advantages attaching to this *class* of anatomical productions, apply in a very eminent degree to his work, and have in fact been suggested to us by the perusal of it. He professes to have composed it with a view to assist his pupils in the dissecting room, and, disregarding all other objects whatever, to have endeavoured to communicate to them the information of which they stand in need, in the simplest and most intelligible form. In this we think he has been very successful. He writes like a man perfectly acquainted with the subject of which he treats; and we hesitate not to assure the student of anatomy, that he will find in this small volume, a most useful and valuable companion in the dissecting-room. Nothing is more common than for the student to lose much of his valuable time, and much too of the information he might otherwise derive from his dissections, from want of a proper method of procedure. Now, this serious evil Mr Shaw labours to remedy; and by turning up the proper part of this "Manual," the student will be sure to find, not merely a description of the parts which he is going to dissect, but a set of directions and cautions for the conduct of his dissection; how to commence his incisions, in what relative situation he will find the several parts, what other parts conceal them, from what causes they may possibly elude his search, what twigs of nerves and bloodvessels he may incautiously cut through, and thus lose the opportunity of observing, what remarks he ought to make with a view to the surgical operations, of which the part he is dissecting is the seat, and in what manner he ought to perform these operations in the dead subject. The different methods of injecting the vessels and preparing the body for dissection—of placing the muscles on the stretch, by a proper position of the subject, and of sawing off portions of bone to get the best view of the parts under examination—the delicate manipulation necessary for displaying the minute structure of the eye and ear, and other intricate organs, which, without such management, could not be successfuly exhibited—and the apparatus employed in these various processes are all accurately described; and this information is rendered more valuable, by its being for the most part brought together in that order in which it will be most conveniently accessible by the dissector.

We feel tempted, at every page, to illustrate the above remarks by extracts from the work; but must forbear from doing so, lest we should lengthen too much this article. What we have said will sufficiently show its general character. There are various other works which have been got up of late years upon a similar plan; but the distinguishing advantage of Mr Shaw's is, that, in it, we meet not only with correct, and minute, and well arranged anatomical descriptions, but with a distinct sketch of our plan of procedure, and full directions as to what is to be done at every stage of our dissections.

Mr Shaw acknowledges freely his obligations to his friend Mr Charles Bell's System of Dissections; but he has by no means borrowed slavishly. In one respect, we think, he has improved upon his valuable prototype, by avoiding those physiological and pathological discussions which occur so frequently in Mr Bell's work, and which suit it for the study, rather than for the dissecting-room. When the student has the subject before him, his attention ought to be exclusively devoted to the study of structure, of surgical operations, and of those points in practice of the profession, which are strongly elucidated by the actual view of the organization and anatomical relations of the parts under consideration. Every thing that tends to withdraw him from what is presented to his sight is irrelevant, and a waste of his time. This disposition to digression is the most common error of every description of authors; and we are pleased to find that Mr Shaw has kept so free of it. The most remarkable instance of it in his book, is the introduction of a new theoretical explanation of the functions of some of the nerves. The statement of this theory, and of the grounds on which it rests, is not sufficiently full to enable us to judge of its merits; but the author appears to regard it as well established, since, on the strength of it, he has introduced some important changes in the nomenclature of the nerves. We would however suggest to him, that to make such changes in the terms of any science, *on theoretical grounds*, has been found, by past experience, to be but an unprofitable amusement, inasmuch as a fresh revolution in terms becomes as necessary as ever, when our knowledge, which never stands still, has advanced a little farther. *The nervus accessorius ad par vagum*, for instance, is an excellent name, because it is founded on an unalterable fact in anatomy; but its new name, 'the superior external respiratory,' is entirely founded on theory. So also is the term 'Respiratory nerve of the face,' which is the new name for the portio dura. Now, as we at present know less of the nervous system than of any other part of the animal economy, it is highly probable that our most enlightened theories in this very obscure part of the philosophy of the human frame, are destined to undergo a series of modifications and changes, which will render incessant alterations of names essentially necessary, if a theoretical nomenclature is at all to be adopted. Perhaps it would have been better if these new physiological views, and the two plates given in illustration of them, had not been introduced into the present publication. To introduce them without fully discussing them, and stating at large the evidence in support of them, is really not doing them justice. Besides, the professed object of the author is to treat of anatomy, not of physiology; and we have no doubt that, in revising and perfecting his work, he will be able, in a future edition, to fill the space they occupied with matter more consonant with his plan. An alphabetical index would greatly increase the value of his book. The table of contents, though copious, does not supply the want of it.

We cannot omit noticing Mr Shaw's method of treating the affection which ensues on a cut in dissecting. After recommending, very properly, a good diet, regular exercise, and regulation of the bowels, as preventives of this affection, he adds—

> "The best remedy for the inflamed lymphatics, and the swollen arm, is to apply lint soaked in sugar of lead lotion, and tincture of opium, to the arm; and to take calomel purges, and large doses of opium, with plenty of wine and porter."

We marvel exceedingly what can be the author's reason for prescribing large doses of opium, with plenty of wine and porter, in a most acute inflammatory affection, attended with violent fever, and not unfrequently fatal. Would it not be better, as in other acute and dangerous inflammations, to remove every thing calculated to increase the velocity and strength of the circulation, and to abstract blood more or less copiously, in proportion to the urgency of the symptoms?

We are also constrained to dissent from Mr Shaw's position, that all who have written for the use of students in the dissecting-room, have been servile imitators of Mr Bell's dissections, and that the anonymous author of the London Dissector, who is reputed to be a man of the highest professional eminence, and whose work has been so long and so justly esteemed, has derived every thing valuable in it from the same source. Frequent coincidences are quite inevitable in works written for the instruction of the same class of persons, and professedly descriptive of the same objects. The same unchanging and admirable model presented by Nature has been successively copied by many artists, whose delineations must resemble each other strongly in every feature, if each has been in any degree successful.

We must not close this article without expressing our approbation of the unpretending form in which Mr Shaw has chosen to publish this very useful work. It is some praise to him, in this book-making age, that a quantity of matter, which he might easily have dispersed over a couple of goodly octavos, has been condensed, by close printing, into the more convenient form of a duodecimo of 342 pages. This is a proof that he has kept usefulness in view. We think that his book bids fair to see many editions; and we hope that it will, on these occasions, undergo a few slight prunings, and will display many new and vigorous branches of the same useful and valuable materials of which the parent stem is composed.

III.

A Treatise on the Nature and Treatment of Scrophula; describing its Connexion with Diseases of the Spine, Joints, Eyes, Glands, &c. &c. &c. founded on an Essay to which the Jacksonian Prize, for the Year 1818, *was adjudged by the Royal College of Surgeons: To which is added, A Brief Account of the Ophthalmia, so long prevalent in Christ's Hospital.* By EUSEBIUS ARTHUR LLOYD, Member of the Royal College of Surgeons in London, Senior Surgeon to the General Dispensary, Aldersgate Street, and late House Surgeon to St Bartholomew's Hospital. London, 1821. pp. 330.

WE doubt not that many of our readers must have observed, that there is scarcely any term in practical medicine, the application of which is less precise and defined than that of scrofula, struma, or king's evil; and that several diseases, somewhat dissimilar, are daily, in common language, denominated scrofulous. Such was not at all times the case. The ancient physicians, among whom we rank both the Greek and Roman followers of Hippocrates, seem to have imitated their master in bestowing the names of *choerades*, or *scrofulæ*, on certain tumors which they occasionally observed in the neck, groin and armpits. We learn, from the works of these authors, that practitioners then looked for the disease in the form of a swelling or swellings, which appeared most frequently in the neck, but were also found in the armpits, groins, sides, and even occasionally in the breasts of the female; and that tumors of this kind were slow in undergoing any morbid changes, were seldom attended with any prominent symptoms; and, when they ultimately proceeded to suppuration, were healed with great difficulty, and were always very perplexing to the medical attenant. It does not appear that any of these physicians looked on scrofula as a constitutional affection, or that they considered it as capable of appearing, in various forms, in different parts of the human body. Yet, there is every reason to believe that the human race were not, in these days, exempted from those maladies which are familiarly called strumous in modern times. We are certain, for example, that consumption was a disease by no means unknown—that affections of the bones and joints were not infrequent; and lippitudes, various affections of the ears, and chronic abscesses, are mentioned as the daily objects of chirurgical treatment. Scrofula, therefore, was in ancient times deemed a local disease, and was not supposed to be connected with any constitutional peculiarities, or to give rise to any particular order of diseases. The Arabian physicians, and their professional descendants of the middle ages, did not add to this simple system of the pathology of scrofula, and do not appear even to have modified it. As we find little to excite, and nothing to gratify curiosity on this subject, in the confused pages of the Hhawi, the Canon of Ebn-Sina, or the Taisir of Abou Merwan Ebn-Zohr, we shall not occupy the small portion of time which is given us, in minute examination of doctrines which it is useless to know, and injudicious to practise. From this character, however, we must exempt Ahrun, the priest of Alexandria, who, in ascribing scrofula to bad regimen and imperfect nutrition, certainly in some degree maintained the constitutional nature of the disease.

The authors of the Lily of Medicine and the English Rose, who may be taken as fair representatives of the opinions of their contemporaries, speak of two varieties, the *glandules* and the *scrofulæ*,—which, however, differed only in this respect that the disease was denominated glandules when a single tumor occurred, but scrofula when several appeared in the same individual. De Chauliac, Bruno, Theodoric, Lanfranc, and other surgeons who appeared in the 13th and 14th centuries, entertained nearly the same opinions, which indeed were continued with little modification till a very late period. The advancement of anatomical knowledge seems to have been the first thing that threw much light on the nature of scrofula; for the systematic study of the animal structure on the one hand, and the spirit of investigating diseases by morbid dissections on the other, seem to have gradually enlarged the ideas of physicians, and to have shown more clearly the relations of the malady. Julius Pollux ascertained that tumors, which he called scrofula, from their similarity of character, occurred not only in the neck, but also in the mesentery, and sometimes in the general cellular membrane. John Philip Ingrassias, the celebrated Sicilian anatomist, whose name is associated in the history of osteology with the sphenoid bone, informs us, that he saw in one body about seventy strumous swellings of different sizes in the mesentery, some of which were hard as stone, others like plaster, and others were of a mucous consistence enclosed in a capsule. Langius relates the case of a woman on whose hip was a strumous tumour, which Antonius Benivenius cured by means of tight bandages and the actual cautery; and both Laurentius and Brassavola had observed examples of swellings which they considered strumous, and which were generally diffused over the greater part of the person.

At the conclusion of the 16th and beginning of the 17th century, when these authors principally flourished, struma seems no longer to have been considered as restricted to those situations in which the ancient physicians taught that it occurred; but it does not appear that any distinct views had been yet entertained of the extent to which it might prevail in the system, or the possibility of its depending on constitutional causes. So far as our remembrance serves us, Richard Wiseman is the first author in whom we can recognise any approach to such a doctrine. This genuine surgeon, whose talent for observation and originality, could not be destroyed, although it was biassed and influenced by the spirit of his age, made some very bold efforts to rid himself of the shackles of authority, and be instructed by the events which occurred in nature. He was aware of the defects of the existing pathology; and although the false science of the day led him to look for the proximate cause in the irrational fiction of acidity of the serum, still we must admire the talent for generalization which enabled him to perceive, that the prevalence of scrofula was not limited to the glandular system. Not only does he expressly state, that although the external glands were most frequently diseased, yet those of the mesentery, and, in some instances, the conglomerate or secreting glands, as the lacrymal, salivary, mammæ, pancreas and testes, were affected; but he also declares that his view of the malady leads him to differ materially from the ancients, and consider it as incidental to muscles, tendons, ligaments and bones, many tumours and ulcers on which were evidently strumous; and also to attribute certain diseases to the operation or influence of this disposition. Of this nature he accounted many affections of the joints and bones, as white swelling, caries, and spina ventosa; ophthalmia, lacrymal fistula, and enlarged tonsils; and he accordingly records several examples of this kind of morbid action which had occurred in these textures. The sagacity and penetration of Wiseman, however, are nowhere so conspicuous as in recognising the scrofulous habit where external glandular affections occurred simultaneously with lumbar abscess and tubercular disease of the lungs.

" A young fellow of about thirty-six years old, and servant to a person of honour in the country, was sent to town; he had been long diseased with a supposed *Fistula in Ano*, it was on the right side near the *Podex*, the ulcer was sordid and with round callous lips. He had been long diseased of the *King's-Evil*, there being many *Scrophulæ* on both sides of his neck. Upon search, I found a *Sinus* run towards the *Os sacrum* a great length, and so deep, as gave me small hopes of laying it open. The next dressing, I was provided with vulnerary injections, such as have been set down in sinuous ulcers, and dressed him up with detersives, and prescribed him such physic as might have regard to his scrophulous habit of body. While I was thus treating him, he began to be troubled with a cough, which he had been frequently subject to in the country; upon which account pectorals were prescribed, and he was thereby relieved. The cure of the ulcer not succeeding, I applied a caustick upon the upper part of the *Sinus* between the *Os sacrum* and the *Coccyx*, and passed in my director at the same time, and cut through the escar into it, designing by this opening to intercept the humour flowing downward to the ulcer; but the while he was taken again with a shortness of breath: I let him blood, and repeated the use of lohocks and cordials with spirit of saffron, &c.; but he took his bed, and died the third day after. I having leave to open him, desired Doctor *Walter Needham* his assistance in finding out the cause of his death; we found *all the Glandules within very scrofulous, those that lay upon the Iliack vessels ulcerated, from whence flowed a great quantity of matter down into the Pelvis, thence insinuating itself amongst the muscles, and to the place where I had applied my caustick, and from thence to the ulcer near the Anus: his lungs were also stuft with Strumæ, and the Viscera all very bad.*"

It does not appear that Wiseman's views were adopted entirely by any subsequent pathologists; for although Dr Russel, who flourished about the middle of the last century, mentions as strumous affections of the bones, cases of ozaena and caries of the internal ankle, yet he seems to have been so much attached to the glandular hypothesis, that he not only endeavours to prove that scrofulous affections of the lungs originated in defluxions on the tracheal and bronchial glands, but, by a singular perversion of observation, he denominates diseased knee-joint the enlargement of the glands of the knee.

This view of the pathology of scrofula evidently gained ground, in consequence of its apparent neatness and precision; and it is not unworthy of notice, that the advancement of anatomical knowledge, instead of showing it to be, as is now thought, erroneous, contributed essentially to confirm and establish it. A further step was, however, still wanting, to render the doctrine completely scientific; and this step was destined to be taken at a period a little later. Although the lymphatics had been discovered and demonstrated long before this time, yet it does not appear that pathologists hitherto thought of referring scrofula to *the* absorbent system. This refinement was reserved for a later day, when the labours of the Hunters, and the authors who were reared in their school, as Cruickshank, Sheldon, and Hewson, seem to have mainly contributed to alter the pathology of scrofula. We fear we should abuse the indulgence of our readers, if we attempted to follow the traces of this doctrine, among the various authors who wrote then, and subsequently; but it is sufficient for our purpose to remark, that Mr White of the London Dispensary, who published in 1787, was so completely of this way of thinking, that he introduces his description of scrofula by an account of the lymphatic system, which he believes to be the exclusive seat of the disease. The same opinions were delivered and improved by the distinguished founder of the present system of nosology in the University of this city; and it appeared in truth to be a doctrine which was not only very plausible, but unquestionably true, since it rested on the truth of the structure of the animal body. It is impossible now to discover whether Dr Cullen really imagined that the morbid state denominated scrofula was seated in the lymphatic system exclusively, and that its occurrence in several different regions and textures, was to be ascribed to the general distribution of the absorbent vessels; but we know that he deemed certain diseases scrofulous, which were not generally admitted as such by the more ancient pathologists.

It is obvious that this theory, which was generally followed by most British physicians, implies a twofold form of the disease;—a local one, confined, as stated in the nosology, to the glands, and a general one, which might occur in any part of the body where the lymphatics were found or distributed. To the first, the name of scrofula was more peculiarly restricted; the second was deemed the mere result of a scrofulous taint, or what was subsequently named the scrofulous diathesis. The former was sufficiently precise; but the absence of a specific enumeration has given rise perhaps to much of that vague and general mode of speaking, which we daily meet with on the subject of scrofula. The diseases, indeed, which Dr Cullen attributed to this source, bear no proportion to the number which are now esteemed such, and considered as proofs of the strumous diathesis. Any one who has been initiated into the practical details of a tolerably extensive hospital, or who is moderately familiar with the opinions of practical men, whether from daily conversation or from their writings, must have remarked the great proportion of complaints which are at present ascribed to the scrofulous tendency, and in the production of which it is scarcely possible to admit the operation of the lymphatic system. There is no proof, for example, that the abscess of the psoae muscles, diseased hip-joint, or carious vertebræ, all of which are deemed scrofulous diseases, can be ascribed to the morbid state of the lymphatics of these respective parts; much less can we pretend to assert or show, that water in the cerebral cavities, or the various tubercular disorganizations of the pulmonary cellular texture, of the liver, spleen, prostate gland, &c. are occasioned by the unsound state of the absorbents of these organs. We do not now speak of the propriety of considering these diseases as strumous; but, if we are to follow the authority of those who are believed to know most of the nature of such affections, it is evident, either that the characteristic nature of scrofula is not fully understood and well defined, or that it is a complaint much more generally prevalent than is commonly believed; and that, above all, it does not consist in a morbid state of the lymphatic system, in the sense at least hitherto delivered. It is not easy, nor is it within the scope of our purpose here, to consider the means by which this change in the pathology of scrofula has been effected; but, if we were called on to specify one cause which, more than any other, seems to have had a considerable influence, we should say, that the views given by Mr Abernethy, and diffused by his authority, ought not to be overlooked.

On the prevalence of scrofula we have only to offer a single observation. If we attach the same meaning to the term *king's evil* which our forefathers did, the disease is certainly greatly less common than it was; for, not only do we actually see fewer of the glandular swellings and external sores than formerly, but this form of the disease is really less fatal. We learn from the London bills of mortality, that the deaths from King's evil were much more numerous about 100 or 150 years ago than they are at present. What at the begining of the last century amounted to 70 in 21.000,—the entire number of deaths—fell at the middle to 15, and at the conclusion to 8. Yet, notwithstanding this reported diminution of what was emphatically named *evil*, we are in the daily habit of seeing many diseases, the strumous origin of which is mentioned as familiarly as if it had never been a matter of doubt; and we should be inclined to conclude, from a rough estimate of their frequency, that they were infinitely more prevalent than ever. It is certain, that various forms of pulmonary consumption are much more general than formerly, that diseases of the spine and lumbar abcesses are not less frequent; and whether it be that less attention was paid to the morbid changes which take place in the substance of various organs, we undoubtedly see a greater number of scrofulous degenerations, as they are named, of internal parts, than our predecessors ever could have imagined.

Although, however, it may be clear that our views of the nature of scrofula differ from those which were formerly entertained, yet it seems difficult, and perhaps premature, to say directly what are the unvarying and pathognomonic characters by which complaints ascribed to it are to be recognised. One surgeon investigates scrofula in the joints, another in the bones, and a third in the brain, lungs, or internal glands; and we cannot at present adduce a single instance of a work exhibiting a genuine view of the modern opinions, except the invaluable Lectures of Dr Thomson of Edinburgh, where we find some excellent pathological observations, which make us only regret that he has not written more fully on the subject.

We submit these reflections to the perusal of our readers, because we trust that they will be thus enabled to appreciate the services of Mr Lloyd, of whose work, as affording a full, and, on the whole, systematic history of strumous diseases, we now proceed to give a more particular description.

Mr Lloyd begins with observations on scrofula in general, in the course of which he draws a very proper distinction between the disease itself, and the diathesis on which it is believed to depend. This disposition, if we understand him rightly, he represents as more powerful and obvious in infancy and early life, than at a more advanced period; while, at the same time, it appears in different regions and organs, according to the ages of the individuals. The most certain proofs of the strumous diathesis are derived, according to Mr Lloyd, from the physiognomical aspect of the patient,—which consists not merely in the smooth skin, and delicate and beautiful colour of the cheeks, so often repeated by medical authors, but perhaps as frequently in a pale, flaccid appearance of the whole countenance, and particularly the parts around the mouth and eyes.

Mr Lloyd, however, very justly calls in question the notion of the pathognomonic nature of the fair complexion, light hair, and blue eyes, so often adduced as proofs of the scrofulous habit; and observes, that not only are there no grounds for such a distinction, but that he had frequent occasion to observe the disease occurring among individuals of every possible tint of colour, without regard to the blue or the dark eyes. We confess we never could understand, why a particular colour of the skin, hair, and iris, was connected with any morbid tendency; and we think that we have often seen persons of this complexion, in whom it was impossible to recognise any strumous appearance. It is certain, from the testimony of many authors, that the aboriginal inhabitants of these islands were remarkable for their fair hair and complexion, and blue eyes; and even at the present moment, we find a similar aspect in most of the natives of the Scottish Highlands; yet it does not appear that scrofula was more prevalent among the former, or is at present more common among the latter, than among more swarthy tribes. We may likewise remark, that the colour and aspect of these textures vary with age; and in many persons whose hair, skin, and iris, are light-coloured in infancy, become darker as they approach to adolescence and middle age. Yet we are not aware that the strumous tendency has been shown to diminish in the same proportion; for if such subjects are really less liable to one form of the disorder, yet it will manifest itself in another, if the disposition exist at all. We have, on the other hand, daily occasion to witness affections generally deemed strumous, occurring certainly not less frequently in subjects, the colour of whose skin, hair, and iris, though not absolutely black, makes at least a very close approach to it. We are, in truth, inclined to render the strumous diathesis, if we must admit such a thing, a more general matter, and to derive its marks from a more extensive survey of the frame of the individual;—the character of the skeleton, for example, the extremities of the long bones of which, and all the irregular bones, are large and bulky;—the condition of the muscular system, the texture of which is always loose and flaccid, the forms slender and long, and the motions heavy and inactive.

Our author's ideas of the causes of this disease, or rather of the mode of its formation in the system, are very judicious, and present a striking contrast to those attempts at convenient precision, which have been frequently tried, but which we think every day's experience will prove to be more and more unsuitable and erroneous. He does not admit strumous affections to depend on the morbid state of any peculiar system, as the lymphatic; but thinks, that we ought to look for them rather in certain unhealthy conditions of the vital functions, and particularly of the alimentary viscera. These, he thinks, are always much favoured, and often induced, by unnatural habits in diet and mode of living, and exposure to impure air, or by residence in situations where the atmosphere is loaded with humidity, while the temperature is so moderate that it is alike unfavourable to the production of the acute inflammations of cold dry regions, and the burning and fatal fevers of the torrid zone.

We do not think that our author is fortunate in his application of the authority of John Hunter, who, as our readers are aware, maintained the doctrine of the hereditary tendency to a disease; for, as in the present instance, the tendency to scrofula arises, according to Mr Hunter, from the climate, it is surely as easy to refer it directly to this cause, as to suppose the climate first to act on the parents, and then to conceive that the tendency thus generated is transmitted to the offspring. Although, however, we are inclined to think that the exciting causes are sufficient to generate the disease, yet as our author defends the hereditary nature of scrofula, we must, in justice to him, lay before our readers one of two cases which, in his opinion, prove this most unequivocally.

"They occurred in the practice of Mr Langstaff, and the morbid parts are preserved in his museum.—A woman died of consumption in the last month of her pregnancy. Her body was examined after death, as well as that of the fœtus. Her lungs were found full of tubercles, some of which had suppurated and destroyed much of the substance of the lung. In other respects, the body was in a healthy state.—The lungs of the child, upon the thorax being opened, were found precisely in the same state as the mother's, being studded with scrophulous tubercles, some of which had suppurated. The rest of the body was in a natural state.—As no instance is on record of scrophulous disease occurring in the fœtus in utero, or in the child just born, without its having actually existed in the mother, no negative evidence even can be brought against these facts to invalidate the opinion of the disease being hereditary." pp. 23, 24.

Arguments of this nature do not admit of much commentary; and although we were inclined to doubt the hereditary nature of this disease, yet our faith is somewhat altered by the information here given us. But we trust that we shall not be understood to say, that scrofula is in every instance transmitted in this manner. We are as certain as it is possible to be of any doctrine of this description, that very healthy parents may have families in whom the strumous habit is manifest, and that the disease is actually generated in the persons of many of those who are its victims. The hereditary transmission of any disease is always embarrassed with this difficulty, that it is requisite to suppose some one in whom the morbid phenomena primarily appeared; and as we must here have recourse to causes which are capable of generating the disease, independent of any innate tendency, it is not easy to see what advantage is obtained by the hypothesis of hereditary transmission. We think, in short, that the facts and reasonings which our author has adduced, show, that, if a person has a strong and decided scrofulous taint, he may transmit to his offspring a constitution, in which the application of exciting causes may give rise to scrofula; but we think likewise, that it is quite possible for such a person to beget children who shall enjoy the most complete immunity from the disease, providing they be not influenced by several at least of these external morbific agents which are named exciting causes; in other words, we believe it possible for the disease to be extinguished or worn out, as it were, even in persons who are descended from scrofulous parents. Lastly, we think that the facts hitherto collected show distinctly, that no purity or strength of parental constitution, no original or innate vigour, will exempt from the ravages of this variable malady, those who have been long and repeatedly subjected to the operation of such causes as, by their power and combination, seldom fail to generate both the disposition, and likewise some local effect.

Reason and experience show, that the knowledge of the efficient causes of a disease, and the prevention of their operation, constitute the only rational principles of treatment; and it is requisite to remember, that there is scarcely such a thing as a direct remedy, that is, an agent which can operate directly on the morbid state in which the disease consists. All that the physician can in general accomplish, is to ascertain the causes which have given rise to the unhealthy actions, and to place the animal functions in a situation in which such causes may not operate on them. When they are no longer compelled to deviate from the sound state, by the influence of these agents, they become, of themselves, the only active remedies which the physician can render available; and he who best knows the mode of accomplishing this object, will be uniformly the most successful practitioner. Almost all remedies which are not of this description, are merely such as enable the patient to undergo the requisite changes which occur in the course of the disease, or in the process of convalescence, with the least pain and inconvenience possible; and no medical attendant should estimate his therapeutic powers in any other light, than as furnishing him with this species of knowledge. Obvious as these principles must be to all, and, we are certain, to Mr Lloyd, he seems to have overlooked them; and he has consequently involved himself in some confusion when speaking of the treatment of scrofula. He has not only occasion to repeat on this head, some of the observations of the preceding chapter, but he has really given us more information on the causes of the disease, than when professedly considering them.

On the influence of climate, he remarks,

" The frequent vicissitudes of heat and cold seem to be the true explanation of this cause; for when these are the greatest and most frequent, its effects, viz. what we call colds or catarrhs, are the most apparent.—I believe, however, that the climate would be but little injurious to us, if we took care that the natural functions of the body were performed in a regular and healthy manner; and if it were not for the absurd practice of sitting for hours in close warm apartments, and then going into the open air, where the temperature may be twenty or thirty degrees lower, without any additional clothing, except a covering for the head.—The influence that climate has on the disease is very evident, from the fact of its being hardly known in very cold, or very hot countries, and from its prevailing most in certain latitudes, as between the latitudes 45° north and higher latitudes. In Africa, in Italy, and other warm countries, the disease is little known; yet when the natives of these countries come to reside in this country, they are very subject to it.—Mr Goodlad tells us, that the inhabitants of Manchester are particularly subject to scrophula; and it appears that they are exposed to great vicissitudes of heat and cold, being pent up during the day in the cotton-mills, and at night exposed on a sudden to cold and damp.—As then it is not the excess of heat or of cold in this climate, which renders it so accessary to the prevalence of scrophula, but the frequent vicissitudes, the principal object of the treatment must be, to preserve the temperature of the surface of the body as equable as possible." pp. 28, 29.

To counteract these various effects of our insular atmosphere, Mr Lloyd very properly recommends the habitual use of woollen clothing next the skin, and gives the following case to illustrate its beneficial effects.

" A young woman of very delicate health, who had had for several years the lymphatic glands of her neck diseased, and suppurating one after the other, and leaving ulcers difficult to heal, which were evidently of a scrophulous nature, was attacked with pain in her chest, and cough, which were very obstinate, and resisted all the usual remedies. After this, when it was believed that her cough was incurable, and that she was in a decline, she was recommended to clothe herself from head to foot in flannel, which she did; from that time her cough began to get better, and in a few months was quite well, as were all the swellings and ulcers in her neck, which had for some years resisted all the medical remedies that had been employed. No new medical treatment was made use of during this period, and all the medicines she took, were linctuses for her cough, and occasional doses of opening medicine. It is worthy of remark, that till she had recourse to additional clothing, she was particularly susceptible to colds, getting catarrh, sore throat, or inflamed eyes, on every trifling exposure to colder air than usual." pp. 29-30.

The derangement of the alimentary function, which predisposes to struma, is often so obscure and so complicated, that it is difficult to frame any general rules which may be applied to all the varieties; and we cannot say that our author has contributed to render this part of the subject either very simple or very obvious. His therapeutic precepts, however, may be referred to two general heads: 1*st*, Attention to diet; 2*d*, Attention to the state of the hepatic secretion, and the regularity of the alvine functions. In the first division, we are very properly requested, while every thing stimulating is avoided, to exhibit nutritious diet, but only in such quantity, and at such regular intervals, as shall prevent the extremes either of a very empty, or an overloaded stomach. We entirely approve of the sentiments which our author has expressed on the effect of the injudicious use of full meals of stimulating food, with wine or other generous liquors, in cases where the particular stage of local disease does not require such a regimen. This practice may be traced to the erroneous notion of the asthenic nature of scrofula; but it may be remarked, that there is no morbid state which is not asthenic, and in which, by parity of reason, the same treatment is not requisite; and it is certain, that such treatment, instead of removing, is calculated in many cases to aggravate this condition, by continuing or augmenting the operation of those causes which originally deranged the actions of the alimentary canal.

For counteracting acidity, which is so often a disagreeable symptom of these maladies, Mr Lloyd recommends the alkalis in general, but particularly the soda; and the mineral acids, cinchona or steel, may be resorted to where the powers of the stomach seem so weak as to require their use, although little reliance should be placed in them.

To accomplish the second object, the most convenient means appear to Mr Lloyd to be found in the blue pill, given to the extent of five grains every night, with about half a pint of the compound decoction of zarçaparilla twice daily. This should be alternated with the compound calomel pill in the same proportion; but all violent cathartics and full doses of calomel should be shunned with the utmost circumspection. As the purpose is merely to procure the periodical and regular evacuation of the bowels, the medicines which are used ought to be exhibited with this view solely.

Cold sea-bathing, which has been so highly recommended in this disease, is deemed by Mr Lloyd not only ineffectual, but in many situations absolutely injurious. He admits it to be useful, when there is a mere disposition to strumous disease, and previous to the appearance of any local affection; and he believes it to be simply not hurtful when there is no active malady, or morbid state of the viscera; but he contends, that it has no power in the discussion of scrofulous tumors, or in healing the ulcers to which they give rise; and in many cases he has found, that patients who have been sent to the seacoast for an inconsiderable affection of the arm, foot, or other external part, have, at no remote period, been destroyed by scrofulous disorganization in the lungs. As these effects were most obvious in cases in which the greater part, or perhaps the whole of the year, had been spent at the seacoast, Mr Lloyd gives his decided opinion, that the patient ought never to remain more than four, or at most five months. We are inclined to shorten even this space; for the whole advantage, whatever it may be, which can be derived from this remedy, may certainly be obtained in two, or at most in three months; and the capricious nature of our climate must for ever forbid a delicate young person to remain longer in any situation of this kind in Britain. This caution and moderation would prevent the measure from being misapplied, and consequently deemed injurious; for the chief advantage which is to be reaped from a seacoast residence, is to be ascribed to the change of air, and the gentle exercise which the warm summer weather enables the patient to enjoy, and in which circumstances only the health is improved, and the constitution strengthened.

On the merit of an analogous constitutional remedy, which is not mentioned by our author, we feel some difficulty in giving utterance to our thoughts. The preparations of iodine have perhaps been submitted to too short a trial to enable any one to form an opinion of its efficacy; but we have both seen and known salutary changes to take place under its operation, which had been looked for in vain from other remedies. If it be found that, after the experience of its exhibition for many years, in many examples and forms of the disease, and by several different practitioners, it continue to retain the character which it seems to be acquiring, we shall then be better able to estimate its sanative powers, and to ascertain how far we can trust to its operation in obviating or removing a disease which seems to elude the most judicious measures of the physician.

In the second general division of his work, Mr Lloyd proceeds to the consideration of the local effects of scrofula, or, in other words, to the history of those diseases which are attributed by the most experienced pathologists to the prevalence of the strumous diathesis. These effects appear in general in the form of a peculiar species of inflammatory action, which is slow in its progress, and has therefore been esteemed chronic by some authors, and which, although it is much modified by the texture in which it occurs, terminates in most cases in a disorganization of the part, accompanied with the formation of a fluid, very different in its characters from healthy purulent matter. No structure of the animal body may not be attacked with the scrofulous action, and to no texture can it be said to be exclusively confined; but experience demonstrates, that certain parts are more liable to it than others, and, under the operation of the same exciting causes, more readily assume the scrofulous action. Examples of this are familiar in the lymphatic glands of the neck, groin, &c.; those of the bronchia and mesentery; in the cellular texture of the lungs, those parts of the osseous system which are least dense, as the short irregular bones in general, and the articulating extremities of the long bones, the periosteum, &c. Less frequent examples, perhaps, of scrofulous action occur in the secreting glands, as the female breast, and the male testis, the liver, pancreas, spleen and kidneys; and perhaps more rarely still do we meet with this morbid action in such organs as the heart, the brain and nerves, or the skin. We however know enough of the disease to perceive, that it may attack any texture or organ without discrimination, and that we cannot restrict its operation to any texture, or order of textures solely. In the subsequent prosecution of his subject, our author treats successively of all the scrofulous diseases to which we have now alluded, and gives a very just and correct view, so far as our experience of the disease goes, of the various forms in which it may appear.

Many of these forms of struma are so well known, that it is unnecessary to give a particular account of this part of the work before us; and, as we must confine our remarks to the more interesting and important affections, we shall refer the little that we propose to lay before our readers to the heads of strumous disorganization; occurring, 1*st*, in the secreting glands; 2*d*, in the lungs; 3*d*, in the brain; 4*th*, in the osseous system.

In persons of the strumous disposition, any one of the secreting glands may be affected; the mammæ in females, the testes and prostate in males, and the liver, kidneys, &c. in both sexes.

The strumous disease of the female breast occurs chiefly in two forms, the characters of which seem to have a relation, more or less direct, to the ages of the patients. In young girls, before and after the period of menstruation, a hard moveable lump begins to be formed in some part of the breast. As this increases in size, and coalesces with the surrounding parts, inflammation takes place, abscesses are formed successively, and matter, known by the character of scrofulous, is discharged through several fistulous openings, which are rarely healed without the greatest difficulty. In some examples of this form, the tedious nature of the process, the continued augmentation of the swelling, and the successive formation of many abscesses, create a considerable degree of constitutional disturbance, which is seldom much influenced by general or local depleting remedies, but seems to yield more readily to means of counter-irritation.

The second form in which the strumous disease of the female breast appears, is most frequent in adult age, and seems to occur more readily between the years of twenty-five and forty, than at any other period of life. It consists in the uniform enlargement and condensation, as it were, of the entire breast, while the skin and cellular membrane remain comparatively soft and unconnected with the subjacent gland. This process may go on slowly and imperceptibly, without pain or tenderness, for months, or even years; and it is only when the contiguous parts and the integuments begin to adhere to the breast, that the symptoms of acute action appear. The tumor then becomes exceedingly hot, painful, and nodulated on the surface, particularly where the integuments are not firmly attached; and violent constitutional derangement takes place, so that the patient is generally deprived of many nights sleep, while the functions of alimentation and circulation are greatly disturbed. If suppuration at length takes place, it is only partial; and although its formation is attended with great pain, only a small quantity of whey-like matter is discharged. After this has continued for a few weeks, with some relief to the patient, the opening closes, and a new abscess is formed, attended by the same symptoms, and pursuing the same course. "In this manner, abscesses will continue to form successively for several months, until the tumor, gradually diminishing, the whole breast wastes away." These morbid changes are often attended with inflammation and suppuration of some of the lymphatic vessels and the axillary glands, which, however, disappear with the disease from which they arose. We agree with Mr Lloyd in admitting the importance of distinguishing this affection from the induration which gives rise to cancerous ulceration, and we are aware that it has often been removed by the knife as such; but this does not, in our mind, convey any thing like a censure on the practice of some surgeons who, in many instances, seem to have consulted the rank, condition, and other circumstances of the patient, and were anxious to cure the disease with the smallest possible injury to the constitution. The remedy of excision in strumous disorganization, constitutes a nice question; and it requires much delicate deliberation to decide on the particular circumstances in which the pain of operation, and the inconvenience of the loss of parts, are to be preferred to the uncertainties of the local or general powers; but many cases are daily coming under our observation, in which it would have been better for the patient to have had the part removed, than to undergo the tedious and sometimes hazardous process instituted by nature, to rid the constitution of the disease. Such a measure is particularly requisite in patients whose rank in life and occupation prevent them from waiting the progress of the disease for many months; and in hospital practice we conceive the surgeon is quite justified, at least in proposing the removal of the morbid part, and thus accelerating the cure and economizing the health of his patient. We recollect to have witnessed two very well-marked examples of this kind of strumous disease of the mammæ, in which, besides the usual antiphlogistic means, palliatives and sedatives local and general, had been tried without any obvious benefit; and indeed, so slow was the progress of the one, though in a plethoric young woman, that it would have certainly taken at least one, if not two years, to undergo the ordinary changes. The other, after a tedious and unhealthy suppuration, was attended with constitutional derangement, so violent that it was feared the system could not long bear it without sustaining irreparable injury. In both, the removal of the breast accomplished, in a few weeks, what could not have been done in the natural course within many months at the imminent hazard of the patient's life. We are therefore disposed to conclude, that although excision as a general remedy is improper and superfluous, yet particular circumstances may render it not only advisable, but absolutely necessary to the patient's recovery; and it is best to leave these circumstances to the discretion of the judicious surgeon, who will seldom recommend a measure which is not for the best interest of his patient.

Strumous disease of the testicle is rarely met with in the child, and our author has seen only a single instance. It is much more common in the adult, and appears in two varieties, which are similar in this respect, that in both the testes enlarge gradually, and are rather softer than in the healthy state; while there is seldom much pain or even tenderness on pressure. The differences of these forms of disease, are derived by our author from the pathological changes which take place in the interior of the organ. In the one kind, the increase in size depends on "interstitial deposition, or simple expansion of the natural structure of the gland;" in the substance of which it is not uncommon for a small abscess, containing curdy matter, to be formed, and continue a long time without any corresponding alteration in the membranes or surface of the organ.

"In the second kind of scrophulous enlargement of the testicle, the natural structure of the gland becomes entirely absorbed, and a matter, similar to what we see in the cancelli of bones affected with this disease, of the consistence of cheese, and of a yellowish-white, or greenish-yellow colour, is deposited in its place. This new matter is sometimes made up of several distinct masses, and each mass appears to be surrounded by a cyst. The coats of the testicle in this species of enlargement, as well as in the first, continue for some time healthy and unaltered.

"In neither of these forms of the disease, so long as the coats of the testicle remain in their natural state, is the pain very severe: in the latter, however, the pain is greatest. When, however, the coats of the testicle, the scrotum, and other parts inflame, and suppuration commences, the pain is sometimes very great, as in a similar state of the breasts. In both forms of the disease, when inflammation takes place, the testicle and scrotum become consolidated, or they constitute, as it were, one substance. When the enlargement is of the former species, it now feels hard, and is not very tender to the touch; in the latter species, it is softer and more tender. In this latter species, too, at this stage, the small abscesses will be making their way to the surface; and if we trace the surface of the testes with our finger, we find soft places, or pits, with hardened edges, into which we can introduce the point of the finger. When this is the case, it often happens that one or more of the abscesses will soon discharge themselves externally, and if we introduce a probe at the opening, it will readily pass into the substance of the gland. It sometimes, however, happens, that the matter will be absorbed, and the enlarged testicle be gradually reduced to its natural size, or keep dwindling away till the whole gland is absorbed. These cases are not very uncommon; and sometimes both of the testicles will gradually disappear as the scrophulous disease subsides." pp. 94—97.

The knowledge of the nature and course of these morbid states of the testes, is indispensable to regulate the treatment. The want of this information has induced the majority of eminent surgeons even, to consider every enlargement of these organs attended with pain, as of a malignant and incurable nature; and to recommend and practise castration as the only certain remedy. Mr Pott, whose authority as a practical observer has sanctioned not a few errors, was in the habit of deeming all cases of sarcocele, or chronic fleshy enlargement, when attended with an indifferent state of the general health, as irremediable, and to be treated with excision only; and, since the time of this distinguished surgeon, an enlarged testicle, if of many months duration, seldom excited any other idea than that of speedy removal. The importance of the organ, however, and the effects of castration on the general health, might have led pathological surgeons to inquire if this measure were actually requisite in every case, and, if not, in what kind of cases it was necessary. It would scarcely become us to give our decided opinion on the merits of Mr Lloyd's views of this subject, on which many eminent practitioners have thought so differently; but we see great reason for admitting the justice of his general principles; and his practice seems to be rational and excellent. The great and general object of the surgeon, is to diminish and remove irritation, and obviate inflammation or its effects; but the particular measures are made to correspond to the different stages of the disease. In the second stage, where such appropriation of remedy first becomes requisite, we are directed to employ local bleeding only so far as not to weaken the general powers of the patient, and to keep the parts constantly enveloped in the bread-crumb poultice. The general means may be reduced to such as keep the alimentary canal in a healthy state, and exert a sedative effect on the circulation. Mercury, administered either by the mouth or by friction, may be simply useless; but in general it is hurtful. It is in truth almost certain, that the local morbid actions in no instance yield, so long as the general health is indifferent, or the functions much disturbed. In one of Mr Lloyd's cases, after the usual remedies had been vigorously employed in vain, and the unfortunate victim made to suffer most dreadfully by the insertion of a seton through the scrotum, a cure was effected by a seasonable escape from the tainted atmosphere of St Bartholomew's, when the effects of the bread-crumb poultice and laxative medicines were aided by the pure air and tranquillity of the country.

A very interesting inquiry occurs, in the possibility which there may be of restoring the affected part to its original structure. It would appear that this is quite possible, and actually takes place in the first kind of strumous testicle; and more especially, if only one or two abscesses are formed; but wherever the suppuration is extensive, or when the entire gland is converted into soft caseous substance, which occurs more frequently in the second kind of strumous testicle, restoration of the original structure is impossible. In these latter cases, all palliative means are ineffectual; the harsh and violent remedies of counter-irritation are the only measures on which the surgeon can rely for checking or moderating the morbid action. The form in which Mr Lloyd employs this agent, is the kali purum or caustic potassa applied so as to enlarge the orifices of the sinuous ulcers, and to form a considerable eschar.

The prostate gland is liable to be affected with the strumous action only in young men above the age of puberty; but it is rarely the sole part so affected; and the morbid disposition is manifested in such persons by the simultaneous disease of some other organ. Mr Lloyd, for example, observed this malady in combination in one instance with enlarged mesenteric and lumbar glands, and in another with tubercular disorganization of the lungs; and we have seen it in the same kind of subjects, and in combination with fistulous affections in the vicinity of the rectum. We have, indeed, had occasion to remark it as an exceedingly interesting fact in the pathology of this organ, that the repeated, and, as it were, irresistible formation of these diseases in the cellular membrane of this region, is often connected with long continued strumous inflammation of the prostate gland and vesiculæ seminales; and our author, whom this circumstance has not escaped, has shown, that the strumous prostate has a tendency to the formation of at least three secondary disorders, as they may be named;—1*st*, strangury with a gleety discharge, which may become a puriform discharge of scrofulous matter; 2*d*, urinary abscesses and fistulæ, which likewise discharge scrofulous matter; 3*d*, *fistulæ ani*, which are generally manifold; and, wherever the surgeon is consulted on any one of these diseases, he will find it his interest to direct the most attentive inquiries to the condition of the prostate gland.

The situation of the organ, and the nature of the affection, render it impossible to do much by means of powerful local remedies; those which act on the general health are more rational, and the practitioner may alleviate the patient's sufferings by anodyne suppositories, and the occasional introduction of the bougie and elastic catheter. These latter measures, however, must be employed with the greatest reserve and discrimination; for the frequent use of them, like all mechanical means, uniformly aggravates the symptoms of strumous disease. The bougie is most useful when the disease of the prostate has given rise to urinary fistulæ; but, even here, it should be employed with a sparing and delicate hand. Yet it is much to be regretted, that, however judiciously the surgeon may treat the strumous prostate, his efforts are seldom of much avail. Some other texture or organ is found to be affected with the same action; and although the most conspicuous symptoms be in some degree subdued by the happy application of the means of relief, still a mesenteric disease, an affection of the spine, or a tubercular lung, clings to the patient with indissoluble affinity, and seldom fails to be the agent, which, in the language of the ancient poets, severs from his head the fatal lock to which the measure of his existence was attached.

The observations of our author on scrofulous affections of the liver, pancreas, spleen and kidneys, are neither so original nor so valuable as to warrant a particular account of them. They seem to be chiefly confirmations and expansions of what Dr Baillie had already described and delineated in his valuable works on Morbid Anatomy; and, as Mr Lloyd frequently refers to Dr Baillie, so we shall refer our readers to Mr Lloyd.

The scrofulous state of the cellular texture or parenchyma, as it is sometimes named, of the lungs, has been long known to give rise to the assemblage of morbid phenomena which constitute pulmonary consumption. In the work before us, we find its usual appearances described with sufficient accuracy; but we believe it will not be easy to satisfy those of our readers who are familiar with the works of Bayle and Laennec, or the pathological inquiries of Dr Abercrombie. We shall venture, however, on the following extract.

" The first change which the lungs undergo, when they take on diseased action, in a scrophulous state of the constitution, is the deposition of particles of a cheesy scrophulous matter, such as has been already described, into their parenchymatous structure. I make use of the term *parenchymatous*, to distinguish from the bronchial structure, which I am convinced is seldom if ever the seat of this morbid deposition; for where this has taken place in both lungs to the greatest extent, the breathing is comparatively but little affected. This deposition goes on to form masses of different size and shape, and these masses are termed scrophulous tubercles.

" The tubercles appear to be surrounded by cysts, but on close examination we find that these are nothing more than condensation of the surrounding substance of the lung. The tubercles will often go on enlarging to an indefinite extent; and as they enlarge, it frequently happens that two or more of them will coalesce, forming one large mass of scrophulous matter, made up of different portions. and each portion having apparently a distinct cyst, which preserves its vitality to the last, as its vessels are readily injected when we throw an injection into a lung in this state. The tubercles, however, are clearly unorganized matter, as the injection never passes into them, and as they never show any of the properties of living matter, particularly that uniform property of forming vascular connection to surrounding parts, whenever placed in circumstances favourable to it; but like dead matter, continuing insulated and unconnected with the surrounding parts, so that you may turn them out of the cavities in which they lie without injury, and leave the part of the lung surrounding them perfectly smooth, in the same manner as an acorn will turn out of its cup, or a nut out of its husk. It will be seen too, in the sequel, that, like dead matter, they act as foreign bodies. Of course, when the tubercle or mass of scrophulous matter is of an irregular form, and portions of it are projecting in different directions, it cannot be separated from its situation in the lung with the same facility as when its surface is smooth, or it is of a circular form. These tubercles are found pervading every part of the lung, or there may be only a few of them. and these of very large size; and sometimes many of them will project from its surface so as to make it rough and uneven." pp. 285–286.

We are not certain that it is possible to admit these inferences on the nature and actions of the ordinary pulmonary tubercle. Although Mr Lloyd argues the unorganized nature of these bodies from their not admitting the fluid of injections, yet we can adduce from Dr Baillie's authority, and likewise from our own personal observation, an exceedingly strong fact, which to us at least demonstrates most unequivocally an organic character. It is well known, that the pulmonary tubercle is originally not larger than a pin-head, and may be found of all intermediate sizes to that of a garden-pea; but, when it has attained the latter size, it is seldom quite homogeneous, and generally contains a small quantity of semifluid matter. If a portion of lung, occupied by the ordinary kind of tubercle, be examined by means of various sections, these bodies are found in all possible stages of their progress. Those which are small are quite homogeneous, and resemble morsels of soft whitish-gray cheese with a tinge of red; others, somewhat larger, present in the interior of this caseiform substance, a very small quantity of semifluid matter; and others, still larger, are entirely converted into fluid contents, so as to communicate the idea of a capsule or cyst, enclosing a fluid or semifluid matter in its interior. These appearances which we have seen in many subjects, demonstrate clearly, we think, that the softening or fluidifying process, whatever it may be, begins at the centre and proceeds to the circumference of the tubercle, which however we cannot suppose to be possible, unless its interior were at least in some degree organic. We cannot indeed deny, that pathological dissections sometimes show the reverse of this, viz. matter around a tubercle, the substance of which is little if at all changed; but these are almost uniformly, so far as we have observed, cases in which, while, the tubercles were in a latent or inactive state, the patient was exposed to one or more exciting causes, which produce so much the more easily an augmentation in the capillary action of the pulmonary cellular membrane; and in this manner give rise to the formation of purulent matter in the vicinity of the tubercles.

A young man, for example, apparently healthy, but whose lungs are occupied with minute tubercles, forming very slowly, and consequently in what is called the latent state, receives a violent injury of the chest, or gets his arm injured so as to require amputation, or perhaps undergoes the operation of lithotomy; instead of recovering so easily and rapidly as usual, his febrile symptoms continue, he has very slight cough and occasional dyspnœa, and in the course of two or three weeks perhaps he becomes decidedly hectic, and, notwithstanding all remedies, gradually declines and sinks under his disease. His body is examined, and the lungs are found occupied with many minute abscesses in various degrees of maturation. In some parts, the tubercles are found literally enveloped in purulent matter; but in all may be observed purulent matter in contact with the vascular and inflamed cellular texture. In such a case, the inflammatory action either originated first in the cellular membrane, and was thence propagated to the tubercles, or it might commence in both at the same time. We agree with Mr Lloyd in thinking, that in such circumstances, the tubercles acted, in some degree, as foreign bodies; but we cannot, in the present state of our knowledge, admit that such is their effect in all instances, or that therefore they are not organized. It is obvious, we think, from the facts which are already collected, that tubercles may pass into the soft state in three modes: 1*st*, by the natural process which is observed to commence in them at a certain period of their growth, and which, there are reasons for believing, depends on a partial organization of the tubercle; 2*d*, by the occurrence of pneumonia or bronchitis, which is so much more easily produced in lungs of this kind in consequence of the operation of very ordinary exciting causes; 3*d*, in both of these modes, at the same time and in the same lung.

The observations which follow, though just, are not very new; and in the present day, when so much has been thought, said, and written on the pathological changes which the lungs undergo in consumption, we could not expect to interest our readers generally by adducing those of Mr Lloyd; and we shall therefore refer the curious to the work itself.

On the scrofulous tubercles of the brain, our author expresses nearly the same opinion from which we have had occasion to dissent, when considering those to which the lungs are liable. As our personal experience does not enable us to speak in the same manner on this subject, we shall give the statements of the author in his own language.

"The tubercles of the brain, like those of other parts, are unorganized, and distinct from its substance; and having exposed one of them, you may readily lift it out of its bed without rupturing any vessels, or lacerating any of the parts contiguous to it. I believe it oftener happens that you find several of them in a brain than only one; and that, as in other parts, you find, that though one of them has occasioned an abscess, the others shall not apparently have excited any irritation. Sometimes, too, there are in the same brain in which there are true, or the common scrophulous tubercles, tumours of a different description. I have seen these tumours of different sizes, and they appear to be more intimately connected with the substance of the brain, and almost of the same colour, but much firmer in texture; while the common scrophulous tubercles exactly resemble those of other parts. There are preparations proving the existence of both these species of tumours at the same time. I believe, however, it is a fact not mentioned by any author. I may observe that they are very different from tumours of the fungoid class, and very similar to what we sometimes meet with in scrophulous disease of the lungs. It is not very uncommon to find scrophulous tubercles of the size of a large pea, or even of a marble, in one or both of the choroid plexuses." pp. 309, 310.

Richard Wiseman first remarked, "that bones are as frequently affected as any part of the body, but the manner of the tumour differs; for though the bone swell, and the outward shell thereof appear hard, yet the inward juices are all putrid and rotten. It is certain, that not only the bones of the fingers, *carpus*, *metacarpus*, *tarsus*, *metatarsus*, and toes, are liable to this evil, but also the scull itself, the jaw-bones, and all other bones of the body."

The facility with which the different parts of the osseous system become scrofulous, is influenced by their structure. It is well known that this structure is of two kinds;—one, in which the osseous particles are closely and compactly aggregated to each other, so as to form a dense, uniform, homogeneous mass; the other, in which, although the minute particles or ultimate atoms are united with equal compactness, yet the mechanical disposition is different, insomuch as the osseous matter is arranged in capillary lines, as it were, intersecting each other at various angles. This different arrangement of osseous matter, the chemical composition of which is the same as the first, since the same quantity of substance is made to occupy a greater space, renders the bone at once less dense and firm, and specifically lighter. This latter form, which, from its resemblance to lattice-work, has been not inaptly named the cancellated structure, is found in the articular extremities of the long bones, and in the whole of that order which have been named short, round, or irregular bones; and in this division principally of the osseous texture, the surgeon has occasion to meet with those unmanageable maladies to which the general name of scrofulous has been applied. It is by no means clear to us, however, that every morbid state of these bones is occasioned by the scrofulous action; for as a bone is an organic solid, penetrated with various vessels, we must suppose it to be liable to the usual derangements in circulation and nutrition, which are common to all organic substances. Still there is observed, in this modification of the osseous texture, a peculiar tendency to enter into a morbid action, which is slow in progress, disorganizing in effect, and often destructive to the health of the system at large. We have oftimes been inclined to inquire, what peculiarity in this texture gave rise to such morbid actions; why they occurred here rather than in the more compact parts of the skeleton; and in what particular part the disease commenced? None of these questions, which we doubt not have likewise occurred to others, have we yet been able to answer in a satisfactory manner; and every successive explanation has proved to be as imperfect as its predecessor. We confess we have been often tempted to think, that one cause at least was concerned in the production of the effect to which we allude—that as these bones are more generally connected with soft, white, membraneous textures, which are more organized, they were therefore more likely to be influenced by any disease which might occur in these softer textures. The frequency of caries, for example, in the vertebræ, the carpal, metacarpal, tarsal, and metatarsal bones, might often be traced to the synovial, and fibro-cartilaginous textures with which these bones are so abundantly provided. But the occurrence of scrofulous disease in bones where such textures are not found, *e. g.* the scapulæ and ribs, and bones of the cranium, forms an objection of some consequence to this view.

According to Mr Lloyd, the beginning of strumous action takes place in the cancellated structure.

" The true scrophulous disease of a bone, I believe, always commences in its cellular, or cancellous structure. At first the vascularity of the bone appears to be simply increased; gradually, however, the whole texture is altered; the earthy matter is absorbed, and the bone becomes softer than in health. Subsequently the natural secretion of the cancellous structure also becomes absorbed, and the cancelli are filled with a yellow caseous matter, or a transparent yellow fluid. Sometimes, too, with this cheesy matter there is a whiter and more solid matter deposited in the same bone.

" It often happens that the whole of the cancelli are nearly filled with this cheesy matter, or that several of the cellular partitions being broken down, a large mass of it is collected at one spot, while the rest of the cancelli remain entire, and are filled, partly with it, and partly with the yellow fluid; or many of them may appear altogether empty, not even containing any of their natural secretion.

Sometimes we find that only a part of the cancellous structure of the head of the bone has undergone this change. Indeed, I am inclined to believe that it often begins in the centre, as I have found the deposition of the new matter is very frequently greater there, and the exterior of the bone commonly remains hard, as has been observed by Wiseman, p. 252; while the interior is completely deprived of its earth, and so soft as to be readily cut with a knife. Sometimes, however, only one side of the bone will be affected; and the whole of the deposite will be found there. It occasionally happens, that all the bones of a joint are affected in this way; but it often occurs that only one of them shall undergo this change. Sometimes too, the cheesy matter pervades the cancelli of the whole bone; and is deposited in innumerable portions of the most minute size." pp. 119, 120.

This statement may describe the true process in many cases; but we doubt whether it will apply to all; and we are further certain, that the enlargement and thickening which takes place in the soft parts, and which has been long known to depend on the deposition of a gelatinous fluid in the cellular membrane between the fibrous and tendinous parts of a joint, is not, as our author says, a secondary affection, but in many cases exists without any disease in the bone. We have seen it occur where the synovial membrane was primarily, and the capsular ligament subsequently affected, and where, on dissection, no vascularity or diseased state of the bone could be recognised. We trust Mr Lloyd has not, in forming his conclusions, been misled by a very common error—the possibility of thrusting a scalpel, or sharp instrument, through the articular cartilage among the cancelli of the bone. Every one who knows the density of a recent bone is aware, that this can be done with the greatest facility on young subjects in the best possible health; and it ought to be remembered, that the extremities of the cylindrical bones are particularly soft and unresisting, so long at least as their epiphyses are not firmly united. The cancelli indeed of the human subject under the twenty-fifth, or even, in some cases, the thirtieth year, are so little dense, that it is always easy to penetrate them with an instrument, and more so in the recent state, while their natural softness is aided by the presence of the animal fluids; and although, at a later period of life, the cancellated parts of the skeleton become firmer, yet as scrofulous caries is most frequently observed in the bones of young subjects, before they have attained their greatest density, we rather think that the natural texture of the bone has been often considered morbid, merely because it was possible to destroy the cancelli. While, therefore, we do not entirely doubt the morbid state of the cancellated structure, in which we have often seen actual caries, yet more careful and precise examination is requisite to satisfy those who are acquainted with its properties in the healthy state; and we certainly are not hitherto furnished with sufficient proofs that the disease uniformly commences in the manner described by our author.

Connected with this subject, we regret to controvert another of Mr Lloyd's dogmas,—the disappearance of the calcareous matter in all strumous affections. Now, the only diseases in which we ever understood there was any thing like an absorption of the bone-earth, are mollities ossium and rachitis; and unquestionably, when the strumous diathesis generates either, its presence is distinguished by this process. But in caries, there is no such thing as a disappearance of the earthy portion —at least it is not a necessary and constituent part of the process; and the morbid change which takes place, consists in the actual removal of osseous particles; the affected part becomes the seat of an action which removes, by the ulcerative absorption, particles of bone, that is, particles neither of animal matter alone, nor of earthy matter alone, but of both at once; and leaves a broken ragged surface wherever the action has extended its influence. A carious bone becomes rough and irregular, not soft—and we have seen carious joints as hard as the most compact part of the skeleton. Our author must have lost sight of Mr Hunter's doctrines entirely, when he thought that chemical laws would furnish an explanation of a process which is purely vital; and he will find some difficulty in reconciling his doctrine with the decreasing vitality which he is convinced accompanies the deposition of scrofulous matter; for certainly the most vital part of a bone is the animal matter, and if this be deprived of the calcareous part, it is not easy to see how the bone should have its vital power diminished. We are ignorant of the steps by which our author has been led, or the means which he has employed to arrive at this conclusion; has he, in like manner, trusted to the devastation effected by his scalpel among the cancelli of the tarsal bones, or the condyles of an amputated femoro-tibial articulation? Has he subjected these bones to any accurate chemical analysis, or put them into the hands of some dexterous analytical friend, in order to ascertain the absence of the calcareous phosphate? If he has done so, it became him to state the facts which convinced him that the earthy portion had disappeared; for, most assuredly, the profession are greatly too well informed to admit such a vague hypothesis, founded on principles of which not surgeons, but pathologists in general are to judge, and where the dissector requires the aid of the chemist before he can draw a decided inference.

Our author evidently considers the affection of the proper articular textures as generally secondary, and the result of the previous disease of the cancellated structure; and his observations lead him to infer, that the soft parts, external to the joint, suffer first, and form repeated abscesses, before the cartilages and the cavity of the joint become affected. He admits, however, *that* the inflammatory disposition of the soft parts may appear first in the synovial membrane, so that ulceration of the cartilages, which, in the natural course, is generally a late event, may occur at a very early period; but, even in such cases, thickening of the external parts to some extent at least has taken place.

We are not sure that our author is correct in stating it as a general fact, that the ulceration of the articular cartilage depends on the diseased state of the bone; for there are certainly examples in which this process commences in the cartilage, without any previous affection of the cancellated texture, and in which, as Mr Lloyd observes, it depends more probably on the affection of the synovial membrane. This order of morbid changes is certainly very frequent in the ilio-femoral articulation, where the disease seems almost invariably to consist in a chronic, strumous inflammation of the synovial membrane, and the subsequent ulcerative absorption of the articular cartilages. Perhaps it is less frequent in the other joints, the structure of which is unlike this; but we have seen it going on in the same manner in the femoro-tibial articulation, and without any proof of the bones being previously diseased. When this process has been commenced, and goes on without being controlled by the curative means employed, the cancellated texture of the bone begins to be removed in succession; so that a considerable portion of the articulating head may be destroyed before the morbid action is arrested. It is in this manner that are formed the excavations in the head of the bone mentioned by our author; and this appears to us to be the natural course of the disease in the larger joints, in which the osseous parts are affected in consequence of the previous disease of the synovial membrane and articular cartilages. But we doubt not that an inverted order may occur in other situations, especially the carpal and tarsal bones, and in those of the vertebral column.

The pathology and the symptoms of the different diseases of the joints, are now so generally understood, at least so far as they are capable of being known, that we deem it superfluous to notice this part of Mr Lloyd's performance. And we can only afford room to speak very briefly of his treatment, which is, on the whole, very well worth being made more general.

We are uncertain whether it can be truly said, that the treatment of diseased joints and bones is not very well understood, or at least not guided by any general principles; but we think there is not the smallest doubt that there are few diseases which are less under the control of good effective surgery. The practitioner, for example, who is fired with the love of operating, never dreams of attempting to save even the great toe of his patient, but uniformly proposes amputation as the indispensable resource. This, however, is not a cure; it is indeed ridding the patient of his disease, but it is by no means applying surgery in the mode in which it ought to be the pride of the surgeon to apply it. A medical attendant of an opposite character will palliate the symptoms, and, from an ill-judged mercy, especially if the disposition of his patient be unfavourable to active measures, allow the disease either to make irreparable ravages, or effect its own cure by some favourable change which has taken place in the constitution. The object of the rational surgeon ought to be, to obviate either extreme, and, by the seasonable adoption of powerful remedies, either to supersede the necessity of removing the limb, or at least to place the patient in such circumstances, as would bring the diseased action to the point which it will certainly reach, without much disorganization and consequent deformity. That this is often practicable, is proved by the event of many cases in which the obstinacy of the patient counteracts the premature activity of the surgeon, and actually saves a joint or limb which would otherwise have been sacrificed to the established rules of surgical practice. It is impossible to remove either a carious vertebra, or a diseased hip-joint; yet, it is certain that many cases of both, under proper management, are cured, or at least restored to a very comfortable degree of soundness; and that, on the other hand, many knee-joints and scrofulous tarsi, in which we observe the same morbid actions, are amputated without delay, for little other reason we have often thought but because they were capable of being removed. Considerations of this nature are certainly calculated to produce some doubts of the propriety of much of the common mode of treating these affections of the bones and joints, and ought to lead the surgeon to the early use of the most energetic means of counteracting the morbid action. It is indeed true, that patients seldom apply for surgical advice until it is too late for such measures; but much that we have seen, and not a little related by Mr Lloyd, proves, that it is uncertain when this irremediable period is come. We have only to refer to the cases related in pages 161–163, 163–166, 171–172, 179–180, in two of which amputation, though recommended, was found unnecessary, while, in the other two, the symptoms would have assuredly, in common circumstances, have sanctioned such a measure.

It is on this account, that, besides bestowing particular attention on the general health of the patient, not so much in the usual plan of supporting the strength by stimulating food and drink, as by close and unwearied management of the alimentary function, our author recommends and practises in the strictest manner every measure which can either prevent or subdue inflammatory action, or remove every cause of irritation. All motion of the joint or limb ought to be suspended in the mean time; and, in order to secure this object, Mr Lloyd recommends the use of splints, under which the scrofulous action in many joints, he declares, has been checked and removed. In the lower extremities, of course, rest in the horizontal position becomes requisite, and a sling when the superior are affected.

"The perfect state of quietude recommended above should be enjoined so long as the scrophulous habit of body remains, so long as there is any pain in the joint, and so long as there is any disposition in the soft parts to form abscesses. If, however, at an earlier period, it be judged necessary for the improvement of the patient's health that he should take air and exercise, and it is one of the joints of the lower extremity that is diseased, he should be compelled to walk on crutches, and the limb should be still steadied by means of splints. Of course, when the upper extremity is affected, there can be no objection to using exercise.

"While the specific, or scrophulous action, is going on in the joint, I believe, as I have stated before, that there is no local treatment that can have any positive influence in removing it; still, however, by regulating the temperature, and by the judicious application of leeches, we may effect a great deal towards preventing inflammation and the formation of abscesses in the soft parts surrounding the joint. Nevertheless, in the abstraction of blood, we must be careful not to weaken the patient too much. When abscesses have formed, the best application we can make use of is a bread and water poultice; or, if there be much pain, a poultice made with the decoction of hemlock, or poppies perhaps is preferable." pp. 152, 153.

As the articular abscess, whether originally formed in the synovial membrane, or communicating to it from the contiguous textures, is attended with much tension and pain, and general disturbance of the health, it ought to be opened as soon as it is distinctly recognised; and the surgeon ought not to be deterred from this measure, either by the foolish and groundless fear of the air injuring the articular cavity, or by the supposed danger of wounding the capsule. Simple enlargement of the soft parts is best treated on the principle of counter-irritation, by repeated blisters, and the emetic tartar ointment succeeded by the judicious use of the compressing bandage; and at a subsequent period, when swelling and sinuous ulcers indicate much internal disease or even denuded bone, the use of issues or setons is stated to be highly efficacious.

Amputation, the last and most humiliating resource of the surgeon, is to be recommended or discouraged from the effects of the previous treatment, the influence of the local disease on the general health, and the certainty of the absence of any organic change in some of the more important organs. A joint or limb is early enough removed, after all other means, general and local, have been attempted in vain; such a measure is premature, so long as the general powers are not obviously and materially impaired, and useless, hurtful and irrational, if the lungs, mesenteric glands, or any internal organ, be affected.

Our limits will not permit us to notice the interesting matter which Mr Lloyd has furnished on diseases of the spine, and their connexion with lumbar abscess, most of the examples of which he justly believes to depend on disease either of the dorsal or lumbar vertebræ; and we conclude with a single remark which may probably have occurred long ago to most of our readers who take any interest in the subject of Mr Lloyd's work.

Mr Lloyd does not exactly say that there is no such disease in nature, or nosological arrangement, as scrofula; but both his work and the modern opinions in general point at such a doctrine. We must indeed infer, that scrofula, as described even by Dr Cullen, has no existence, and that this simple form of it has been indebted for the important place which it has occupied in system and practice, to the superficial and obvious situation of the lymphatic glands. It is not necessary to esteem every inflammation of these bodies scrofulous, nor should the practitioner expect to find in scrofula, a specific disease which appears in a uniform manner. We are, on the contrary, led to conclude that it consists in a disposition, or rather a modifying power, the influence of which is manifested in various ways, according to the morbific agents to which the habits of the patient expose him. Every texture is liable to certain morbid actions; and these may be controlled or modified by the scrofulous disposition, which, in some instances, converts capillary motion into inflammation, and simple inflammation into chronic in others;—which causes one set of vessels to deposit an unknown or unusual substance, and others to induce a change of structure which nothing can obviate, and which renders the removal of the part, if practicable, necessary to the preservation of life.

IV.

1. *Analyse Chimique des Quinquinas.* Par MM. Pelletier et Caventou. à Paris, 1821. pp. 88.

2. *Formulaire pour la Preparation et l'Emploi de plusieurs Nouveaux Medicamens.* Par F. Magendie, à Paris, 1821. pp. 84.

Under these titles we propose to embrace a general account of all that has yet been published concerning a highly interesting class of substances, for the discovery of which we are indebted chiefly to the labours of the French chemists; and we do so the more willingly, because no such account has yet been given in any domestic publication. We allude to the vegetable alkalis.

It is not altogether clear to whom we are indebted for the first idea of the existence of an alkaline principle, composed of the usual elements of vegetable matter. In 1803, M. Derosne * procured a crystalline substance from opium, which dissolved in acids; but he did not determine its nature or properties. In 1804, Seguin † observed another crystalline substance in that drug; and read a memoir before the French Institute, containing a relation of almost all its properties as they are now known to chemists; but, although he even noticed its influence on the vegetable colours, he did not pronounce it to be an alkali. Sertuerner of Eimbeck, in Hanover, ‡ pursuing the same researches about the same time as Derosne, procured both his principle and that observed by Seguin. In 1817, he improved and republished his experiments, and was then the first who unequivocally proclaimed the existence of a vegetable alkali. It was the essential salt noticed by Seguin, now known by the name of Morphia. Since that time, many of our most energetic drugs have been submitted to analysis by the French and German chemists; and the result is, that almost every active substance hitherto examined has yielded a peculiar principle, approaching more or less to the nature of an alkali, and possessed in a high degree of the physiological properties of the vegetable from which it has been procured.

The principles already discovered are, *Morphia*, from Opium; *Strychnia*, from the nut of the Strychnos nux vomica, S. ignatia, and S. colubrina; *Brucia*, from the bark of the Brucea antidysenterica, (false angustura bark); *Cinchonia*, from the bark of the Cinchona condaminea, C. oblongifolia, and Portlandia hexandra, (Carthagena bark); *Kina*, from the Cinchona cordifolia, C. oblongifolia, and Portlandia hexandra; *Veratra*, from the Veratrum album, V. sabadilla, and Colchicum autumnale; *Emeta*, from the Callicocca ipecacuanha; *Delphia*, from the Delphinium staphisagria; *Picrotoxa*, from the Menispermum cocculus; *Solana*, from the Solanum nigrum and S. dulcamara; and *Gentiania*,* from the Gentiana lutea. Besides these, others have been announced as residing in the Daphne alpina, Atropa Belladonna, Hyoscyamus, Aconitum, Stramonium, Capsicum, Senna, and Piper nigrum. In short, it is probable that careful examination will detect an analogous principle in almost every compound vegetable drug.

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* Ann. de Chimie, Vol. 45.

† Ann. de Chimie, Vol. 92.

‡ Ann. de Chim. et de Phys. t. v.

Of those which we have enumerated, however, several will probably be afterwards found to be merely disguised modifications of each other. It is very probable, for instance, that Kina and Cinchonia are varieties of one alkali. We are likewise possessed of facts which tend to associate Strychnia and Brucia under one principle; but our experiments must be repeated and corroborated before we can venture to give a more decided opinion. Meanwhile, we may venture to suggest to those engaged in this interesting department of analysis, that Chemistry would be more benefited, and perhaps even their own claims enhanced, if they were to connect as much as possible the alkalis of vegetables yet to be examined with the principles already discovered in genera having an analogous action on the animal economy. At all events, on discovering a well defined new principle, no pains should be spared to trace it, not only in the other species of the same genus, but also in all other genera of similar physiological properties. There is even a belief prevalent among the discoverers themselves, that all those principles are merely varieties of one alkali, differently modified in each by certain other principles;—an idea which is founded on the very small quantity of acid requisite to neutralize them. This opinion our present imperfect knowledge allows us only to mention; yet we may remark, that, the existence of one vegetable alkali being proved, there is no reason why there should not be as many more as there are vegetable acids.

They are all prepared nearly in the same manner. At first, they were procured by precipitating them by ammonia from the aqueous infusion of the plant; but M. Robiquet afterwards improved the process by substituting magnesia. The first object, therefore, is to procure this infusion, which, for some, is done by simple maceration. For others, it is necessary to prepare previously an alcoholic extract, and for others it is proper, first of all, to remove the fatty matter by the action of ether. Sometimes it is requisite to remove the colouring matter from this infusion by the action of subacetate of lead, followed by that of sulphuretted hydrogen, to precipitate the excess of lead. The aqueous infusion, whether simple or so prepared, is then boiled with a small quantity of magnesia, which unites with the acid, holding the alkali in solution. The alkali being thus precipitated, is found mixed with the excess of magnesia, an insoluble salt of that earth, and a quantity of colouring, extractive, or resinoid matter. The precipitate being separated and boiled in alcohol, we obtain a dark-coloured solution, in which the alkali crystallizes on cooling, the resinoid matter from its greater solubility remaining behind. The crystals are still tinged with this resinoid matter; but they are rendered pure by re-dissolving them in alcohol, boiling with animal charcoal, and crystallizing them anew, different manipulations of less consequence are employed for each.

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* The terminations of these names are conformable with what has been already adopted for some of them by several domestic contemporary Journals of Chemistry. Some of them, such as Emeta and Picrotoxa, might be advantageously changed for names derived from the plants which yield them. But this is not our province.

In general, the vegetable alkalis assume more or less of a crystalline appearance. Kina, veratra, brucia, emeta, delphia and solana, have not yet been regularly crystallized; strychnia and picrotoxa crystallize in quadrangular prisms; cinchonia and gentiania in needles too minute to be distinctly surveyed; morphia in quadrangular prisms according to Thomson, in single and double quadrangular pyramids according to Choulant and Sertuerner, and in slightly flattened hexangular prisms according to all the specimens which we have ourselves prepared, or have procured from the Parisian *pharmaciens*.

Their colour is white; gentiania alone is yellow, and this perhaps arises from impurities. Commonly they have more or less of a pearly lustre. They are all inodorous. Their taste is generally bitter in various degrees. That of strychnia, brucia and picrotoxa, is most insupportable and lasting. Indeed, that of strychnia is probably the most powerful of tastes; it is perceptible when a grain is dissolved in eighty pounds of water.*

They are not altered by air or light. They are decomposed by a moderate heat; most of them previously melt, some at a temperature inferior to 212°, others not till they are about to be decomposed. The principle of hyoscyamus is said to resist a low red heat. Analyzed by the deutoxide of copper, they yield carbon, hydrogen and oxygen; but no azote, unless they have been prepared by precipitation with ammonia.

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* Ann. de Chim. et de Phys. x. 153.

Their solubility in water is very small, but is rendered in general greater by the presence of the colouring or resinoid matter. All, or nearly all, are very soluble in alcohol. Ether readily dissolves delphia, veratra, kina, emeta, and gentiania; but morphia, cinchonia and picrotoxa, are very sparingly soluble; and brucia and strychnia are nearly insoluble.

Excepting gentiania, they all restore the vegetable blues previously reddened by an acid; some of them, such as morphia and delphia, tinge turmeric and violets.

They combine with the acids. In general, they form neutral salts; but it appears that veratra, emeta, and perhaps also picrotoxa and delphia, always unite with an excess of acid. All the combinations with the mineral acids, excepting the salts of picrotoxa, are exceedingly soluble in water; and, with the exception of the nitrate of cinchonia, and all the salts of veratra, they are crystallizable. The acetates too are in general soluble, though not always, and they are disposed to form supersalts. All the oxalates, except of picrotoxa, and all the tartrates are rather insoluble, and have likewise a tendency to unite with an excess of acid. The oxalate of picrotoxa is the most soluble of its salts. The gallates of cinchonia and kina are very insoluble, a fact which explains the effect of the infusion of galls on their solutions. There is no particular phenomenon in the action of most of the acids when they form those combinations. That of concentrated nitric acid, however, is sometimes very peculiar. It converts the greater number into artificial tannin; but it seems to peroxidate morphia, strychnia, and brucia, rendering them less powerful as salifiable bases, and diminishing or destroying their action on the animal economy. It is very remarkable too, that the products, so formed, are restored to their original condition by proto-hydrochlorate of tin, sulphuretted hydrogen, and other disoxygenating substances. In general, these alkaline principles act upon iodine and chlorine in the same manner as the ordinary alkalis, that is, the water is decomposed, and the oxacids and hydracids so formed, enter each into combination with a portion of the salifiable base. Chloric acid seems to have a tendency to act on strychnia in the same manner as nitric acid.

All the salts of the vegetable alkalis are decomposed by ammonia. Their order of affinity, in relation to each other, as derived from the proportions in which they unite with acids, is laid down in the following Table of the quantities of sulphuric and hydrochloric acids, which combine with 100 parts of each base:

	Cinchonia.	Morphia.	Picrotoxa.	Kina.	Strychnia.	Brucia.	Veratra.
Sulphuric	13.02	12.46	11.11	10.91	10.48	9.67	6.64
Hydrochl.	9.03	8.62		7.08	7.61	6.63	4.32

We have not yet received a detailed account of the salts of the other alkalis. It appears, however, that atropia exerts a greater neutralizing power than any other of them; its sulphate consisting of 38.93 base, 36.52 acid, and 24.55 water of crystallization.

In their natural state, they commonly exist in combination with peculiar acids; a few of them are found in the state of malates.

When we survey this general view of their chemical properties, it is apparent that their title to the name of alkali is sufficiently distinct. They restore colours altered by acids; their action with chlorine and iodine is the same as that of the acknowledged alkalis; and, in uniting with acids, they form for the most part neutral and crystallizable salts. Nor ought we to omit, in this enumeration, the property which some of them possess, of combining with an additional quantity of oxygen, so as to form peroxides.

The vegetable alkalis are endowed with a powerful influence upon the animal economy; and it is a law hitherto universal, that they concentrate in themselves all the physiological properties of the vegetables to which they belong. It is worthy of remark, however, that, although their effect is much greater than that of the undecomposed vegetables, the same quantity of alkali is not so powerful in its pure form, as in its natural state of combination. Thus, six grains of morphia produce no more effect than six grains of the watery extract of opium, which are equivalent to 12 grains of the opium itself; yet, in these 12 grains, there is not above a sixteenth part of morphia. The acids render their action much more energetic, chiefly, or perhaps solely, by increasing their solubility. Alcohol, and in general fixed oil, have the same effect. Those of them which act as poisons, namely, all but gentiania, cinchonia, and kina, show their agency in whatsoever manner they are introduced into the system; and, like the vegetable poisons in their ordinary state, they act more forcibly on the serous membranes than upon the stomach, and more violently still, when they are introduced into the cellular tissue, or directly into the veins. It is not improbable that this difference is owing to their being, in part, decomposed by the processes of absorption and digestion. Most of the poisonous alkalis, especially those yielded by narcotic plants, seem to exert their influence on the nervous system, through the medium of absorption. But others (and even some of the narcotic alkalis when given in small doses) produce their fatal effect more slowly, by inducing inflammation of the intestinal canal.

All observers agree that *Morphia* acts as a powerful hypnotic. Uncombined, however, it has no action on account of its insolubility. A solution of the pure principle in olive oil (and probably also in * alcohol) is almost twice as powerful as the same quantity of the watery extract of opium. United with sulphuric, hydrochloric, or acetic acid, it exerts an energy equal or somewhat superior to the same quantity of watery extract; and it appears that the mineral acids have more efficacy than the acetic in neutralizing its deleterious properties. The extract of opium, deprived of morphia, has no influence. In general, however, it does produce a slight but sufficiently obvious effect, which has been rightly supposed by M. Orfila to arise from a portion of morphia remaining behind, after the action of the magnesia. We have found, in truth, that, after separating the morphia by the action of magnesia, and then evaporating the infusion to prepare this inert extract, a brown scaly matter is deposited in abundance, while the infusion continues quite fluid; and these scales are, in a great measure, composed of morphia, united with extractive or colouring matter. Of course they are allowed to remain in the ordinary mode of making the extract. It would lead us into too extensive details, were we to attempt to give an outline of the experiments of M. Orfila, by which he arrives at those conclusions. The experiments have every appearance of being accurate; and M. Orfila's great experience and fidelity entitle him to full credit. We may observe, however, that the reports of the state of the animals, while under the influence of the poison, are, for the most part, given at too distant intervals. In experiments made with so energetic a substance, much of their value and interest depends on the animals being closely watched, so that every change may be noticed as soon as it takes place; and, in the present instance, the nature of the reports bears internal evidence that this has not been done.

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* These facts being ascertained upon dogs, comparative experiments have not been made with the alcoholic solutions. Those animals cannot be used for this purpose, as a small quantity of very diluted alcohol is nearly as injurious to them as opium itself.

A few observations of much interest are given by Sertuerner[*] on the effect of the alcoholic solution of morphia on himself and three of his pupils. He found, that repeated small doses of half a grain produced at first decided excitation, then weakness, numbness, and tendency to fainting. After swallowing vinegar while in this condition, violent vomiting was excited, profound sleep intervened in one delicate individual, and next day he was tormented with nausea, vomiting, headach, anorexia, constipation, and heaviness. Notwithstanding this unequivocal experiment, a conjecture has been started by M. Magendie, that morphia produces a pure soporose state, and is exempt from the idiosyncratic action and after effects, which so often attend the use of opium. These effects he ascribes to the presence of another peculiar principle in opium, namely, the salt of Derosne, now more usually denominated Narcotine. Though noticed long ago by Derosne, it was constantly mistaken for one of the salts of morphia, till M. Robiquet[†] pointed out its distinctive properties. It is an azotised substance, crystallizing in beautiful pearly prisms or tables; soluble in fixed oil, and still more in æther and the acids; insoluble in water, and little soluble in alcohol; destitute of action on the vegetable colours, and incapable of neutralizing acids. These properties distinguish it from the vegetable alkalis, and especially from morphia; but its precise nature is not yet sufficiently understood. We may add, that we have ourselves examined it with some care; and all our observations agree with those of M. Robiquet, excepting so far as regards the form of its crystals. The crystals of Sertuerner, and we believe also those of Robiquet, were quadrangular pyramids with rhomboidal bases; all those which we have procured have been rectangular tables bevelled on all the edges. The experiments of MM. Orfila and Magendie[‡] on the physiological effects of this substance differ considerably; yet they coincide in attributing to it not so much a soporific as a mere stupifying power, which does not manifest itself till several hours after it has been swallowed. When eight or twelve grains, dissolved in olive oil, are given to dogs, death takes place some time betwixt the first and fourth day. The narcotine may be entirely removed from the extract of opium by macerating it in sulphuric ether, as was first pointed out by M. Robiquet; and in this way a preparation is procured, which, like morphia, has been supposed exempt from the occasional bad consequences of the common drug. No decisive experiments, however, have yet been made with this purified extract: and yet nothing could be done more simply; it is only necessary to give it to a few individuals on whom the ordinary extract has a deleterious influence. There is one good case of the salutary effect of morphia on an idiosyncratic habit, related by M. Magendie, in the Nouveau Journal de Médecine, X. 23.; in opposition to which, we of course cite that already quoted from the Memoir of Sertuerner.

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[*] Ann. de Chim. & de Phys. V.

[†] Ann. de Chim. & de Phys. V.

[‡] Journ. de Physiologie, I. and Nouv. Journ. de Med. I. & X.

M. Magendie, in his Formulaire &c. proposes to employ the sulphate and acetate of morphia instead of the usual preparations of opium; but the great additional expense for a drug, already high-priced and in such extensive use, must prove a considerable bar to their general introduction, unless they really possess the advantages mentioned above. M. Vauquelin * has recently observed, that the opium from the indigenous poppy contains about as much morphia as the best opium of the Levant. If it should be also found (as is most likely) in the expressed juice or infusion of the fresh capsules, perhaps a process may be found for procuring the alkali at a much more moderate expense. M. Magendie starts a proposition, that by ringing changes on the salts of morphia, its hypnotic effect may be kept up without increasing its dose;—a very unlikely idea, to say the least of it.

We cannot leave this important subject, without noticing the explanation now afforded of the observations, published some time ago by M. Orfila in his Toxicologie Générale, concerning the impropriety of the early administration of acids, and especially of vinegar, in cases of poisoning by opium. In fact, while the poison remains in the stomach, acids augment its energy, by accelerating the solution of its active principle. But, when it has been removed, acids become very beneficial, as M. Orfila has himself indeed observed. Yet his caution is perhaps not to be understood as being without exception; for his experiments still leave one point unexplored concerning the agency of acids. The solution in alcohol, the most ordinary vehicle of opium, when swallowed for the purpose of self-destruction, is probably more energetic than the combinations with the mineral acids; although we must remind our readers that no † experiments have been made to compare the tincture with the other solutions. But if it should prove more energetic, and as it is certain that sulphuric acid neutralizes the deleterious properties of morphia much more than the acetic, it may

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* Ann. de Chim. & de Phys. IX. 282.

† See Note on p. 156.

be found that the mineral acid diminishes the energy of a tincture present in the stomach, although vinegar would augment it. This however is, after all, a point of no great moment in a practical view, as it is an excellent general rule, that neither acid nor any other corrective is to be administered, till the poison has been thoroughly ejected from the stomach.

Strychnia possesses, in a very high degree, all the noxious qualities of nux vomica and the other strychni. It is, perhaps, the most powerful, and, next to hydrocyanic acid, the most rapid of poisons. M. Magendie has killed a dog with one-eighth of a grain, and we have ourselves seen one die in two minutes after the injection of one-sixth of a grain into the cavity of the pleura. The phenomena which take place are precisely the same as those which characterize the use of the strychni; namely, the animal is affected with violent and well-marked tetanus, and no organic lesion is observable after death. It was easy to foresee that so energetic a substance would soon become a favourite article of the Materia Medica. Accordingly, we find M. Magendie, in his Formulaire, recommending it in "toutes les maladies avec affaiblissement, soit local, soit général; les paralysies de tous genres, générales ou partielles;" and indeed we understand that, in Paris, its use is just as indiscriminate as M. Magendie, by this recommendation, could desire to make it. It has been very much employed in palsy, and in some instances pushed so far as to induce tetanus. Its efficacy in this disease has been commended in the most unqualified manner; and M. Fouquier of La Charité has made some clinical observations upon it, which have not yet reached us. We may observe, in the mean time, however, that we have good reason to know that many of the patients, supposed to have been cured, were re-attacked soon after they left the hospital. M. Magendie adds, that he has used it for exciting indolent stomachs (estomacs paresseux). Surely, when we possess so many pleasant, efficacious, and innocent bitters, even among the new remedies noticed in his Formulaire, it is an effort of the blindest attachment to propose the substitution of so formidable and disagreeable a remedy.

Brucia produces precisely the same effects as the last alkali, but in a feebler degree.

Veratra in large doses has also the same effect. In less quantity it excites vomiting, and promptly relaxes the intestines; but those symptoms are often very violent, and accompanied with inflammation. It is, therefore, with some surprise that we find M. Magendie using it "pour certains vieillards, chez lesquels il existait une accumulation énorme de matières fécales dans le gros intestin." We believe that even British physicians, with all their fearlessness in the use of drastic purgatives, will hardly dare to follow him. Veratra is likewise a most powerful but dangerous sternutative.

Delphia, in the dose of six grains, produces nausea, vomiting, vertigo, and convulsions, which usher in inflammation of the stomach; and death ensues in two, three, or four days. Dissolved in acetic acid, it kills in forty or fifty minutes, without producing inflammation.

Emeta given to dogs, in doses varying from half a grain to three grains, occasions vomiting of longer or shorter duration. Ten grains produce it in a more violent degree; and death follows within 24 hours, from inflammation of the tissue of the lungs, and of the mucous membrane of the digestive canal. This observation is rather an interesting one, as it associates this emetic with the tartrate of antimony, which in over-doses produces the same morbid appearances. There seems to be no great advantage in substituting emeta for the ordinary powder of ipecacuanha, excepting that, its taste being much less offensive, it may be very easily given to children.

Accurate experiments have not been made with the other poisonous alkalis.

Gentiania is not a poison. M. Magendie has injected it into the veins without any obvious effect, and has himself swallowed two grains without experiencing any sensation but that of extreme bitterness, followed by gentle warmth in the region of the stomach. He proposes to introduce into the Materia Medica a tincture, containing five grains in each ounce of diluted alcohol. We see no reason whatever why this preparation should displace our compound tincture of gentian, or even the tinctura amara of the Parisian codex.

The discovery of the alkaline principles of bark, promises to be of considerable importance. Gomes of Lisbon was the first who procured *cinchonia* in a state of purity; but he was ignorant of its alkaline nature, the first observation of which we owe to Labillardière, nephew of the celebrated navigator. Its existence was pointed out long before by Dr Duncan junior, who inferred, from the action of certain reagents on the infusions of bark, that it contained a peculiar principle; and he was also the first to denominate it cinchonin. MM. Pelletier and Caventou, in their history of previous analyses, have omitted this remark of Dr Duncan;—an omission the more unaccountable, that Gomes himself, who is quoted by them, makes distinct mention of it in his memoir. The discovery of kina, the other principle of cinchona, belongs entirely to the French chemists. We would advise our readers to peruse carefully the little memoir of MM. Pelletier and Caventou, and we regret that our limits do not allow us to give an abstract of it. It is a perfect model of this kind of analysis, and brings us nearer to the actual, pure proximate principles composing a complicated substance, than any other analysis yet executed. The same we have no doubt will be done for opium by M. Robiquet, who has been lately engaged in further researches on this substance, and has already, we understand, made some important additions to his former discoveries. *Cinchonia* and *kina* exert no immediate apparent action on the economy. The clinical experiments of M. Chomel of La Charité, establish that kina possesses in a high degree the febrifuge virtues of the common bark. One or two doses (varying from 6 to 16 grains) of the sulphate, generally checked the paroxysms of regular intermittents. Of 13 patients, 10 were cured, 5 by the first dose, the others after the second. In two of the remaining three, the paroxysms became milder; in the thirteenth no abatement was produced; and in all the three the ordinary bark was afterwards tried with no better effect. The precautions which he used to remove all sources of fallacy, render his results unquestionable; and we are happy to find them completely confirmed by a few cases published along with them by M. Double, Pelletier's brother-in-law. M. Bally of Paris, and M. Duval of Brest, have likewise published similar experiments, leading to the same conclusion; but these we have not yet been fortunate enough to procure. The observations of M. Double likewise go to prove, that the unpleasant effects produced on the stomach by the bark, are rarely or never occasioned by the sulphate of quina. The sulphate of kina from the Carthagena bark, and the sulphate of cinchonia, have been each tried only once, and both failed. Of course, no inference whatever can be drawn before further experiments are made. When the various kinds of bark, at different times substituted for cinchona, shall have been analyzed, and their products examined therapeutically, we shall be able to form a just estimate of the value of this discovery. At present, we can only notice the explanation which MM. Pelletier and Caventou's experiments enable us to give of the supposed superior efficacy of red bark. This species contains both kina and cinchonia, and each in larger quantity than any other species; the pale bark contains only cinchonia, and the yellow bark only kina. The Portlandia hexandra, in its composition, is closely allied to red bark. If those principles be also found in the Cusparia febrifuga, Swietenia febrifuga, Aristolochia serpentaria, &c., and possess the same medicinal properties as those derived from the different species of cinchona, we need not attempt to show how much the simplicity and energy of our Materia Medica must be increased.

During the course of the preceding observations, it has been our object to enable our readers to gather from them as accurate an idea as possible, of the present and future advantages likely to accrue from the discovery of the vegetable alkalis. It has been our object, above all, to avoid an error committed by almost all those who have interested themselves deeply in the subject, and by none more than by our rival neighbours;—namely, a belief that those principles may be advantageously substituted for the drugs which depend upon them for their therapeutic efficacy, and that, in fact, medicine is to take a new spring from the moment when this shall have been accomplished. In substituting new remedies for those in general use, three points must be held in view,—simplicity, energy, and cheapness. As to the first of these, there can be, in the present instance, but one opinion. We do not consider that a superior, or rather a preferable, or more useful energy, has yet been proved to reside in most of the vegetable alkalis: excepting the experiments of M. Chomel on kina, we have seen hardly any trustworthy clinical researches on the subject. The greatest objection of all is, that the price of our remedies must be prodigiously increased. In employing the alkalis instead of the vegetables, not only is the expense augmented by the process for their preparation, but they actually do not possess nearly the same degree of energy as they do in their natural state of combination. That is, if an ounce of any vegetable matter contains 30 grains of an alkali, those 30 grains are not so powerful in their pure state, as when they are united with other principles to form an ounce of the undecomposed vegetable. We have no means of conjecturing whence this proceeds. There is much reason to expect, however, that the thorough chemical and therapeutic investigation of opium and cinchona, will be attended with results most profitable to medicine. Several chemists and physicians are at present occupied with this research; and, as soon as any thing decisive and important shall have been ascertained, we shall not fail to submit to our readers a more detailed account of the analysis and physiological and therapeutic properties of those two remedies.

Our plan has necessarily led us to omit two new remedies admitted by M. Magendie into his Formulaire, namely, hydrocyanic acid and iodine. These may be considered at a future opportunity. It will be observed, that we have by no means restricted ourselves to the two works which constitute the title of this inquiry. Those who wish to consult the other sources of our information, will find them in a variety of original memoirs, contained chiefly in recent numbers of the Annales de Chimie, Annales de Chimie et de Physique, Journal de Physique, Journal de Pharmacie, Journal de Physiologie, and Nouveau Journal de Médecine.

PART III.

MEDICAL INTELLIGENCE.

Military Russian Pharmacopœia.

At Petersburg, a Russian Military Pharmacopœia has been lately published by Sir James Wylie, under the title of Pharmacopœia Castrensis Ruthenica. Editio Tertia. In two Parts; the first including a Pharmacologia; the second, Formulæ of extemporaneous Medicines, &c.

In the list of simple medicines, is first given the systematic name, next the Russian, its origin, sensible qualities, chemical composition, use, &c. A work of this kind appears particularly requisite for a country like Russia, which extends over 40° of latitude, and 190° of longitude; and which, in its remote provinces, possesses no means of procuring books for the surgeon, even should he have the means of paying for them. The author presupposes, that every Russian surgeon is capable of using with advantage a Latin medical work; a supposition which probably would not hold good among the military surgeons of some other nations. The work is composed with great care and industry, and contains the experience of German, French, English, and Swedish physicians. The composition of medicines is, in a great measure, taken from the Russian Pharmacopœia, but contains also many new preparations; likewise the mode of preparing several of the gaseous fluids. Among other things, it is said, that if to a mixture of ℔ iij. of cider and ℔ i. of French brandy, ʒi. gum kino, or as much ether be added; in the one case, an artificial Port wine is produced; in the other, an artificial Rhenish wine. Subjoined, is a double Index; first, of the simple and compound remedies; secondly, of diseases, symptoms, and poisons, against which particular remedies are pointed out. Though much praise is due to the editor, it is to be wished that he had avoided many new-formed words, such as the following—Neuroblacia, Splanchnemphraxis, Hepatemphraxis, Dialeipyria, Myodynia, Vis lexipyreta, Zooctona, &c.—Med. Zeitung, 1821.

Acetate of Lead and Turpentine in Yellow Fever.

Extract of a Letter from Dr Eberle, *Philadelphia, to* Dr Albers, *Bremen, dated Philadelphia, September 5th,* 1820.—"We have some cases of yellow fever here at present. It is very malignant, though it does not spread very rapidly. Our Medical Police is very watchful; and as the source of the morbid miasma was evident, the care employed in removing it, or correcting its influence, in a great degree retarded the progress of the disease. A new remedy has lately been introduced by a Dr Irving, for the treatment of yellow fever, viz. the acetas plumbi. In a small publication of this person on yellow fever, he maintains, that this remedy has a very powerful influence over the disease. It sooths the irritability of the stomach, which attends this disease when the black vomit appears."

"Our townsman, Dr Chapman, considers yellow fever as a malignant gastritis, and from this theoretic view, was led to the use of spiritus terebinthinæ; but more extensive experience is still required to decide upon its efficacy; and it appears to me at least erroneous to treat a disease like yellow fever, in which the system is so generally affected, by a remedy which is directed only against one of its symptoms."

Russian Vapour Baths.

De Sudationibus Rossicis, Auct. Fred. Gregorio. Berlin, 1819.—In this Inaugural Dissertation is given a very full and satisfactory account of the Russian Bagnio, or Vapour Bath; a subject hitherto not fully treated of: for the Treatises of Sanchez (Bemerkungen ünd untersuchungen über den Gebrauch der Dampfbäder bei Verschiedenen Völkern, in Russland. Russ. Memmimgen, 1789), and Martin (Abhandl. der Schwedischen Academie der Wissensch. Tom. XXVII. p. 69), are by no means satisfactory. The present Treatise gives not only the result of four years' experience in Russia, but also of several experiments made in Berlin, instituted with great care, and which throw much light on the subject. After a brief description of the Sweating Baths of the Ancients, the Arabians, Germans, Turks, Egyptians, and Finns, who, however, did not use the vapour of water, but a dry heat from 60° to 63° of Reaumur, (163°—173° Fahr.) * in low mud huts, formed like an oven, the author enters upon his particular subject. The furnace or stove is so constructed, as to heat the stones necessary for producing the vapour, and also so as to keep a quantity of water constantly boiling. Three or four rows of wood benches run round the room, one above the other, in order that every one may chuse the degree of heat which he can best support. The floor is boarded and sloping, in order to run the water off. When the room is properly heated and filled with vapour, or the steam of water, the patient places himself upon the lowest bench, and after some time mounts higher, according as he can bear the degree of heat. The Russians are accustomed to spend three or four hours here, whilst every five or ten minutes fresh steam is produced. When an abundant sweat has been excited, they wash themselves with soap, and are rubbed down with birch rods; and, finally, some buckets of water, at first warm, then cold, are poured over their heads. Frequently they leap into a river, or roll about in the snow, to harden themselves; but this is only done when in perfect health. Dr G. made many experiments in Russia;—the following are what he made in Berlin.

1st Exp.—A very healthy and tolerably robust young man, of 27 years, was first tried. The pulse in the antichamber at 20° of heat, (77° Fahr.) beat 78 strokes; the weight of the body was 122 pounds 2½ drachms. Soon after his entrance into the bath-room, heated to 35° Reaum. (110° Fahr.), the whole skin was covered with the vapour of water, and, when rubbed off, a profuse sweat broke forth. After 10 minutes, the pulse rose to 112, the breathing remained free and not quickened. The temperature of the mouth and axillæ exceeded the heat of the blood only one degree. In 43° of heat (128° Fahr.), the sweat became still more profuse; pulse 132, and the temperature of the body exceeded the heat of the blood 2½ degrees; but not the slightest oppression of the breast was felt. After 8 minutes he mounted a higher bench, where the thermometer stood at 49° (142° Fahr.); soon after the pulse beat 150 strokes, and the difference of heat of the surface was 3⅓ degrees above blood heat, whilst the body appeared dissolved in sweat. The respiration was now more frequent, and at first somewhat oppressed, but soon became quite easy. After 6 minutes the bather went out, and now weighed 121 ℔ ℥iv., but after sweating in the antiroom heated to 20° (77° Fahr.) covered with woollen clothes, he weighed only 120 pounds, ℥x. and ʒij. so that he had lost in the whole ℔j. ℥ij. and ʒss. After the bath he felt uncommonly light all over, had a strong appetite and thirst, and slept unusually pleasantly.

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* The comparison of Fahrenheit's with Reaumur's thermometer is not perfectly accurate, in order to avoid fractions.

The *2d Experiment*, tried in the same way upon a healthy but somewhat delicate young man, aged 22, showed nearly the same result. The frequency of the pulse, by a graduated increase of temperature from 35° (110° Fahr.) to 50° (144° Fahr.), was increased from 84 to 170 beats; the respiration in the higher degrees of heat was very frequent and oppressive; so that at length fainting occurred, which soon ceased, by reposing a little in the antiroom. At 50° of heat, the temperature of the body was only 33° (106° Fahr.) The loss of weight in the body amounted to ℥xij. ʒv., the chief part of which was occasioned by being covered with woollens in the antichamber. After a short time, furfuraceous exfoliation of the cuticle occurred over the whole body.

3d Exp.—A young man of 25, and rather delicate, had laboured, during three days, under violent coryza, with severe headach, dryness of skin, and other febrile symptoms. The effects of the bath were very striking. Immediately on leaving it, the patient felt an agreeable sense of lightness, with a strong appetite and thirst, and the catarrhal symptoms did not return. During the bath, the affection of the chest was but slightly, and for a short time, increased, by changing to the higher temperatures. The pulse, before entering the bath, was 79; and at 49° of heat (142° Fahr.) rose to 150. The temperature of the body rose to 32¼° (105° Fahr.), The loss of weight, immediately after the bath, amounted to ℥ix. ʒiss. After remaining half an hour in the antichamber, covered with flannels, it amounted to lbij.

To these Experiments are added the three following Observations. A man of spare habit, 28 years of age, used the Russian baths for an arthritic complaint; and had used already forty-five baths, on alternate days. After the fourth bath, the very violent pains had nearly disappeared. After the tenth, the tumour of the joints was considerably diminished. The patient remained each time an hour in the bath, exposed to a temperature of 44° (131° Fahr.), and was rubbed down with birchen rods. The loss of weight, on the whole, was lbij. ℥v. The pulse mounted from 75 to 140, but there was no difficulty of breathing. —Another man, 32 years old, and robust, used the Russian bath for chronic rheumatism in the right shoulder. The effects were as striking as in the former case. After the second bath, the pains had totally disappeared; and after the eighth, he could move his arm, which had been perfectly immovable! He staid only a quarter of an hour in the bath, and lost each time about lb i. ℥vi. In this case also, there was no affection of respiration, which appears, even when it occurs at first, gradually to diminish by repetition of the bath.

In a third case, the remedy was used by a very corpulent man, 54 years of age, against arthritic contractions, which had resisted every other means. Sixty-three baths restored the perfect mobility of the feet, though a little stiffness still remained in the neck. In this patient, after remaining half an hour in the bath, and reposing 25 minutes in the next room, the diminution of weight equalled lb. iij. ℥iv. It may be remarked, that the servant of the bath had, during four years, remained daily 12 hours in the bath, with perfect health, and feeling no other change except an increase of appetite and thirst. He drank 8 or 10 quarts of beer, and made each day about 2 quarts of urine. Dr G. knew several in Russia who had followed this employment constantly during 15 or 20 years, without the slightest affection of their health.

Dr G. considers the Russian vapour bath as the most active, certain, and, at the same time, using proper precautions, the most innocent diaphoretic remedy; one by which the circulation is powerfully excited, without danger of congestion in the head or chest; the lymphatics are stimulated to action, and a general pleasurable sensation induced. It is useful even to persons of a weak chest, provided no organic disease of the lungs, or suppuration, exists; whilst repeated experience shows them to be relieved. The dietetic use of baths cannot be doubted, on viewing the athletic health of the Russians, and the rareness of cutaneous diseases among them. In febrile diseases, Dr G. has found the baths useful in Russia; for, during the typhous epidemic of 1812, few of his patients died who used them. It cannot be doubted that the baths would prove eminently useful in repelled acute diseases of the skin, and the sequelæ arising from this cause. Dr G. has found them very useful in inflammations and puerperal fever, after bloodletting. It is also worthy of remark, that the latter disease appears very rarely in Russia, because the women, immediately after delivery, use the bath. Its use in chronic cutaneous diseases is now fully established; also in nervous diseases, chronic rheumatism, gout, congestions, callosities, dropsy, and old syphilitic diseases. These observations induce us to wish that the use of this valuable and *cleanly* remedy was more generally adopted in this country.—*Bibliothek der Pract. Heilkunde, von Hufeland.* T.M.W.

Official Notice to Medical Officers of the Royal Navy.

Victualling Office, 27th November, 1821.

By the Commissioners for Victualling his Majesty's Navy, and for the Care of Sick and Wounded Seamen.

The Right Honourable the Lords Commissioners of the Admiralty having been pleased, at our suggestion, to approve of the names of such Medical Officers of the Royal Navy as may have graduated at the Universities of Oxford, Cambridge, Edinburgh, or Dublin, or, who having so done at any other University, may be Members of the Royal College of Physicians of London, being accordingly distinguished by the letters M. D. in the Navy List; Notice is hereby given that those Naval Medical Officers who may already possess, or may hereafter obtain, the requisite Degree or License, must produce the same, or a satisfactory Certificate thereof, at this Office, in order that such distinction may be duly noted.

Notice is further given that, in all Appointments in the Medical Department of the Service, a preference will invariably be given, both to Surgeons and Assistants, who may have most distinguished themselves in their professional Studies and Attainments. J. C. Searle, Nicholas Brown, Thomas Welch, John Aubin, Fred. Edgcombe, Robert W. Hay, John Weir.

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PART I.

ORIGINAL COMMUNICATIONS.

I.

Cases of Poisoning. By ALEXANDER MURRAY, Surgeon, Alford.

I SEND, for your perusal, a short history of the effects of poison, upon four individuals residing in the district of Alford, which, if it seem worthy of preservation, you will have the goodness to insert in the Medical and Surgical Journal.

On the evening of Friday, the 24th August last, WILLIAM MITCHELL, a robust man, aged 45, tenant in Burnside, parish of Keig, came to consult me respecting an illness, of which the following were the symptoms:—Pain and heat in the region of the stomach and lower part of the chest; occasional uneasiness in the abdomen, and sometimes ineffectual efforts to go to stool; thirst; difficulty of breathing; heat and uneasiness of throat, with hoarseness; soreness of eyes, which had the common appearance of inflammation; shifting pains in his extremities, particularly the arms, which had not their usual strength; great restlessness; anxious expression of countenance; pulse frequent—100-110—not strong. This illness commenced with sickness, the Sunday preceding, (19th), on his way to church, about 10 *a. m.* He soon after had thirst and headach; and on his way home, between three and four in the afternoon, he was seized with vomiting, which recurred often during the next four or five days, especially on his attempting to quench his thirst. In the early part of the week, he was heard to complain of pain in his stomach, eyes, throat, breast, and arms; he was observed to void his urine frequently; and, about this time, he pointed out to one of his sisters a hollow between his breast and belly, into which, according to her expression, "she could have laid her arm." His illness had scarcely at any time confined him to bed. In coming to me, he rode six miles; and on another occasion he had travelled more than two miles, also on horseback. On Wednesday (22d) he took a dose of Epsom salts, which operated; and on Friday, when I saw him, in the state described, a blister was applied over the stomach and lower part of the chest, and he took an opiate at bedtime. On the following day (Saturday 25th), I visited him at his own house, and found him nearly as before; his countenance more strongly exhibited a disturbed and anxious expression; the redness of eyes and hoarseness were increased; and this day I observed on the palate and uvula, small roundish white acuminated prominences; seemingly the membrane covering the palate bones and velum pendulum, detached at the parts by a whitish liquid. This day he took an ounce of castor oil. Next morning I was informed the man was dead, and had been found lifeless in bed, between two and three *a. m.* The oil had operated the preceding afternoon. His illness was not observed to change during the evening, and about eight he retired to rest. A little past two in the morning, he rose in search of water to drink. On returning to bed, he was heard to utter a deep groan; after which he lay motionless and quiet, and very soon was found to have expired. When I saw the body, about 10 *a. m.*, many bluish spots were observed on the inferior extremities.

James Mitchell, Mary Mitchell, and Helen Mitchell, were attacked the same forenoon with their brother William, nearly by similar symptoms.

JAMES MITCHELL, æt. 52, a few minutes after breakfast, on Sunday 19th August, had a feeling of sickness, but, notwithstanding, went to church soon after, where he felt dimness of sight, with a continuance of the sickness, which, by two *p. m.*, had increased to such a degree, that he was obliged to leave the church. On his way home, he vomited repeatedly a reddish sort of matter, had thirst, and a burning sensation all over his belly. With difficulty he reached their place of residence, where he opened a window in his apartment, and stretched himself upon the floor. The feeling of heat *within* did not leave him for a week, and he vomited occasionally the same length of time; while he was at times so distressed with heat of skin, and overpowering faintness, that he went into a small stream and plunged his arms and head into the water. In the early part of the week, he felt his throat a little sore, and had uneasiness over his whole body, especially in his arms and legs. On Wednesday (22d) he voided with pain his urine, which was red; and about this time he had some uneasy feeling in his eyes. During the week, little passed from his bowels; but he had repeatedly ineffectual calls. When first seen, Saturday, (25th August), he complained of little but pain in his arms, particularly the left, of which he then had in some degree lost the strength; pulse natural in frequency, but intermitting. On the 29th August, he complained of imperfect vision, and difficulty of breathing; still pain of arms, and left more powerless; pulse natural; pupil of left eye contracted. All these symptoms soon disappeared, excepting the affection of the arms; and in all other respects he is now quite well. The motions of the hand are much less impaired than those of the arm and forearm; in particular, the power of bending the forearm on the arm is almost entirely lost.

Mary Mitchell, æt. 50, was seized, immediately after breakfast, on Sunday 19th August, with very heavy sickness, and soon retched violently, but little was vomited. She suffered much from thirst, and vomiting recurred at times for several days. During the week, she had some soreness of eyes and throat, with heartburn, and pain in most parts of her body; had then also tenesmus; but, with the exception of one minute portion of very hard fæces, nothing whatever passed from her bowels from the beginning of the illness until the following Saturday, when she took castor oil; after which her bowels were natural. When first seen, August 25th, she complained of her throat, bones, and colicky pains, with unnatural feelings, and some want of strength in her legs and feet; pulse then 120. A few days after she had swelling of feet, difficulty of breathing, with numbness and *creeping* in the inferior extremities. At present she has numbness and pain in the arms and legs, without any other complaint; pulse 96.

Helen Mitchell, æt. 48, about a quarter of an hour after breakfast, on the same day as the others were taken ill, was seized with excessive sickness, followed by retching, and she vomited some whitish matter. These symptoms recurred occasionally for several days, and were soon accompanied by burning at pit of the stomach, hoarseness, slight inflammation of the left upper eyelid, with numbness, and pain in the arms and legs; and during the space of a week she had purging, and great weakness and tendency to faint. All these symptoms gradually abated, unless the loss of muscular power, which assumed the form rather of great general debility, than that of a partial or paralytic affection, and, in November, existed in such a degree, that she professed inability to walk. Now, however, she has no complaint, unless some weakness, and unusual sensations in her extremities; pulse 96.

It will be perceived that these persons were not seen in the early period of their illness; but, from repeated inquiries, I am satisfied the foregoing account is, so far as it goes, correct. I have deferred noticing the appearances on the dead body of W. Mitchell, until the whole symptoms existing in the different individuals, as they undoubtedly constituted but one disease, should be enumerated. The body, from particular circumstances, was not opened until the 29th August, 3 days 8 hours after death, when Mr William Craigie, surgeon, assisted at the examination, and we made the following observations.

The face had a natural, composed appearance; and the rigidity of the body did not appear to be different from what is common. The right ear, and corresponding side of the face, as well as the scalp, exhibited a deep clay-blue colour. On the chest and belly, several spots and streaks, some green, others blue, were observed; and the back, upon which the body lay, was from head to foot of a livid colour; while several roundish spots, of a still deeper hue, gave to the shoulders and neck a mottled appearance. The penis was much swollen, and red. The scrotum also was enlarged, and of a dark blue colour.

Upon opening the belly, the smell was not unusually offensive, and the abdominal contents did not appear to us to have undergone alteration after death; but, in the cavity, several ounces of a high-coloured liquid were found. On the intestines, jejunum, and ilium, many purple spots, some of them several inches in circumference, were observed; and the outer surface of the stomach, in a tract which extended from the cardiac orifice, and occupied, for some distance downwards, the whole circumference of that viscus, excepting the small curvature, was of a clear, dark red colour; and through this space dark lines, apparently veins, ramified. This appearance, perhaps from 20 to 30 square inches in extent, was strongly marked in contrast with the natural state of the inferior extremity and small curvature. The substance connecting the stomach to the spleen, was, as well as a small part of the transverse colon, of a red colour. The spleen was gorged with blood; the liver healthy. The duodenum, from a small distance below the pylorus, almost to its inferior extremity, and round nearly the whole intestine, was of a very dark purple colour. Upon opening the stomach, the internal surface of that part where the outward appearance, already described, existed, was found of a bright red colour, and over this lighter dots were thickly scattered; making such an appearance as might be produced by a red colour being dashed, from a painter's pencil, upon a somewhat darker *ground.* The internal coats of the duodenum were very dark coloured, with a slightly reddish hue, pulpy, thickened, and easily separated from the peritoneal covering, while in one roundish spot, of the size of a crown-piece, the villous and muscular coats were entirely wanting. Red patches were observed on the inner surface of the jejunum and ilium, the shape, size, and situation of which were the same as those of the appearances already noted on the outside of these intestines. The stomach and duodenum contained about a quart of a brown, semi-opaque, thickish liquid; the jejunum and ilium were empty, and coated with a yellow viscid matter. The lungs and heart were quite healthy; but in the cavity of the thorax were 10 ounces of a reddish turbid liquid, and about half that quantity in the pericardium. The pharynx was of an unusually red colour; the whole of the brain was healthy, and of firm consistence.

The four individuals whose cases have been related, breakfasted together on the morning their illness commenced—all in good health, on porridge consisting of milk, salt, and meal. William partook largely; but James, who perceived " a sickening taste, " took less than common, while the sisters had their usual quantity. No part of the salt and milk used that morning was to be found, after I had occasion to visit this family; and although the remainder of the meal, and also the contents of William Mitchell's stomach and duodenum, were examined by Drs Henderson and Fraser of Aberdeen, as well as by Mr Craigie and myself, no poisonous ingredient was detected in these substances. From the first time of visiting this family, their illness was supposed to arise from a deleterious substance taken into the stomach; but considering the late period of the complaint, and the absence of all knowledge of the specific poison, it was vain to expect benefit from any medicine, as a direct antidote. By each of the three survivors, a full dose of castor oil was first taken, and a course of weak Epsom salts. An alkaline solution and opiates was entered upon; but, after a day or two, supposing their illness beyond the reach of aid, they declined to continue the medicine; hence the symptoms and appearances may be considered nearly the natural, unassisted course of the disease. The *internal* evidence which supports the opinion that poison occasioned the disease, is very strong indeed. All the most characteristic symptoms of poisons existed; while no other supposition whatever seems to me capable of explaining all the phenomena. The vomiting, preceded by sickness, of a more oppressive kind than usually arises from any cause but an emetic substance—the heat and uneasiness in the region of the stomach and bowels—the tenesmus, and, in one, diarrhœa—the thirst—the difficulty of breathing—the tendency to fainting—the enfeebled and paralytic state—the affection of the throat and eyes—the general pains, and the sudden death—are, one and all, in the number of the undoubted effects of various poisons from the mineral and vegetable kingdoms. They may, indeed, in some respects, resemble the symptoms of several diseases, arising from what may be termed a *common* cause, but are not strictly similar; and, without showing wherein they differ from any given disease, it is enough to observe, that the affections of the throat, eyes, and urinary organs, which were present, do not, so far as I know, in any case, unless as the effect of poison, coexist with such symptoms as the above. The high probability, arising from the separate symptoms of each individual, is strengthened, almost to certainty, by the simultaneous occurrence of these in a whole family of four persons; while no similar disease—indeed, no epidemic disease of any kind—prevailed at that time. The appearances on the dead body tend to the same conclusion. These were, externally, similar to such as have been frequently observed. For example, they were much alike to those on the body of a female who died from arsenic, and was dissected by Morgagni, in whom "facies corporis posterior, ne suris quidem et calcibus exceptis, tota erat nigra." (Morgag. Ep. lix. 3.) This author also records, among several similar instances, the dissection, by a friend, of a woman killed by a vegetable poison, of whom he says, "in prono omnia a capite ad calces, colore esse violaceo, animadversum est." (Epist. lix. 12.) The inflammation of various parts of the alimentary canal—the pulpy, thickened, and easily detached state of the inner coats of the duodenum, with attenuation of one spot of that intestine—are of the same nature. Some have attached weight, as a sign of poison, to the easy separation of the velvet coat of the stomach. How far the stomach of W. M. corresponded to this is unknown, as this viscus, which was taken out of the body to be more minutely inspected, so rapidly lost its appearance and consistence, that no inference could be drawn from its state. The serous effusion in the chest and belly, the only other unnatural appearance observed, may, in part, have been a transudation after death, but mainly the effect of one of the irregular actions in the system. In short, the appearances on the dead body were decisively such as poison produces; and unless these, nothing to account for death was seen. No poisonous substance was found in the stomach or bowels; but it is evident, no deduction of any kind can be drawn from this, considering the repeated vomitings, and the doses of purgative medicine which this man had before death.

The brother-in-law of this family was, in October last, tried before the Justiciary Court at Aberdeen, for administering poison to his four relations; and the above considerations then existed to direct the evidence of the medical witnesses, by whom such opinions were given as induced the Judge and Jury to consider the abstract act of poisoning proved. The accused afterwards confessed his guilt, and that he perpetrated the crime by means of arsenic put among the salt the Sunday morning on which the Mitchells were taken ill.

Alford, 13th December, 1821.

II.

On the Contagious Nature of the Yellow Fever. By ALEXANDER COVENTRY Esq., Surgeon, Utica, Oneida-County, New-York.

THIS article was first printed about twelve months ago, in an American paper, entitled the Ploughboy, published at Albany, and was there published as a communication addressed to the Editors of the Edinburgh Medical and Surgical Journal. We received a copy of it in this form some time ago; and, as there is reason to believe that this is the only channel through which the opinions delivered in it can be accessible to the public in this country, we have thought proper to give an early place to it, as the result of observations made on the spot by a practitioner who has been about thirty-five years resident in the regions where yellow fever is most prevalent.

To the Editors of the Edinburgh Medical and Surgical Journal.

GENTLEMEN,

HAVING observed, in your Journal published the 1st of January 1820, the Report of a Select Committee on the doctrine of Contagion in the Plague, I have been induced to submit to your consideration some observations, which my residence in this country, for the last thirty-five years, has enabled me to make on a disease which, from its fatality, may not unaptly be denominated the Plague of the Western Continent, or New World. I refer to that dreaded disorder, the Yellow Fever, to which, although unknown in the British Isles, no inconsiderable part of her promising youth fall victims, when pursuing their fortunes in the Western hemisphere. I am rather induced to this, because I regret to observe, that some of the most respectable medical men in the island have lent the weight of their names to an opinion with which they would never have coincided, had their opportunities of observation been equal to that of many American practitioners, who are located in situations where this disease frequently shows itself.

Having received my medical education in Europe, and witnessed the diseases most prevalent there, I am confident that nothing occurs in the British Islands that would enable the medical man to form a correct idea on this subject. I know also that it requires a residence in particular parts of this country, and that for some time, to become thoroughly acquainted with the nature of yellow fever. Those practitioners who reside north of the 41st degree of north latitude, and within 200 miles of the seacoast, except in some unfavourable seasons, in uncommonly bad situations, will have few opportunities of studying the nature of this fever. This exemption I believe to be much more owing to the hilly or ridgy surface of the country, than to the latitude; but south and west of these lines, there are tracts of flat country abounding in stagnant water. During a residence of five years on the Hudson River, 120 miles north of New-York, I never met with a case of fever, the symptoms of which resembled the yellow fever. After my removal to the flat country, called the Lake Country, I met with fevers that bore no resemblance to those previously seen, but in which I often recognised the black vomit, and intense yellowness described in the yellow fever. Acquainted with the diseases prevailing in the cities through the medium of their newspapers, I had conceived the disorder raging there as one of a very different type, and resembling what I conceived to be the plague of the Levant, more than the epidemic that was so generally spread over the western district of the State of New-York, and with which I had become so well acquainted; having in my whole family, and subsequently myself, undergone the disease. But a visit to New-York, in the autumn of 1805, undeceived me; for in that part of the city near the wharfs, and bordering on the East River, I recognised, on the first glance, the cast of countenance with which I had been but too familiar since the 20th of July preceding. It happened also that the most intimate friend I had in the city, resided in a low situation called Pearl Street, and had remained there during the season. He had the yellow fever himself, also three of his family, two of whom were victims; while his eldest daughter, a beautiful and amiable woman, who had assiduously attended her sick parent, and dying brother and sister, had kept her ordinary health, and still retained the blooming countenance which she brought from the healthy hills of Caledonia. It was conceded by the gentleman who attended this family, that these were genuine cases of yellow fever. I noted, from the reports of my friend, confirmed by the testimony of his physician, the symptoms of this case, and found every symptom correspond with those of many patients who had fallen under my care; none of whom had been near the seacoast, and most had never seen any thing larger than a canoe or small boat in their lives. Through my friend's politeness, I was introduced to several gentlemen who had lived through the yellow fever, having lost near relations by it; and, after the most close attention, I was as fully convinced of the identity of this disease with the epidemic that had raged along the margin of the western lakes, as I was of my own existence; but had I even doubted what I heard and saw, my nose and stomach gave me ample evidence, that the causes to which I attributed the sickness in the west had existed in this city. The principal difference appeared to me, that, in the former case, it was owing to causes not within the compass of human beings to prevent; in the latter, it was self-destruction brought on by neglecting those means within their power, and perhaps acting under a mistaken and very erroneous idea of the foreign origin of this disease, which they had nursed up, or raised in a hot-bed, themselves. The great encroachment made on the river, estimated at 90 acres, composed of perishable or perishing materials, was the evident cause of the mortality in New-York, very similar to what took place last season at Mobile. Blessed with one of the finest and most healthy situations in the known world, having no marshes of extent that can affect the health in the vicinity, and abounding on every side with the choicest materials for building and wharfing, the citizens of New-York were inexcusable for using such pernicious stuff to fill their docks, and found their streets on. No city has better opportunities to secure and preserve the health of its inhabitants, than this favoured spot; and it would be the height of madness to permit false theories, and imaginary hypotheses, to preclude the necessity of a strict attention to cleanliness, which is a surer preventive than any quarantine laws that can be devised; for if the air of the city is as pure as it ought to be kept, although a whole crew from Havannah or the coast of Africa, should gain admittance and die of the yellow fever, you would not hear of any new cases; but the disease would be arrested the same as it invariably is, when the patients are removed to the pure air of the country. Quarantine laws are useful. Every vessel that has a perishable cargo, or that has not been kept well ventilated, whether she has such men on board or not, ought to be cleaned out, white-washed, and ventilated, before she is allowed to approach the docks. Her crew may have gradually become accustomed to the poisonous effluvia as it gained in strength, the same as a tobacco-chewer gets used to that deleterious weed; and the air of the vessel, although in a measure inoffensive to them, may prove destructive to those unaccustomed to inhale the vitiated atmosphere.

Since my first observations made on the yellow fever in 1805, whilst in the city of New-York, I have had many opportunities of marking the symptoms of fever in unhealthy situations; have collected information from gentlemen who have traversed the country, from the north of the Mississippi to St Mary's, the outlet of Lake Superior; seen gentlemen from Cuba and the other West India Islands;—and the result has been, a thorough conviction that the disease denominated yellow fever is epidemic; depends on vegetable putrefaction, and in that short stage which generally attends the fever, is not contagious; but, if protracted and assuming a typhoid state, as I believe both bilious and inflammatory fevers may and often do, the patient may generate an atmosphere around him, which, without due care, may induce an indisposition in the attendants. But, from what I have observed, I am fully of opinion that yellow fever may be pronounced not to be contagious; for, remove the patient to a healthy and elevated situation, keep him clean and well aired, and I should expect no more danger from this disease than from a tertian intermittent. Small-pox, measles, the chin-cough, and other contagious diseases, are found to prevail at all seasons. We never hear of yellow-fever before June or July, in our climate; and the first severe frost never fails to arrest its progress. Thus it commences about the time that vegetable putrefaction begins to take place, and never fails to stop when cold weather puts a stop to that process. That it is not the offspring of heat alone, we judge from its not being known in the deserts in Africa: there must be moisture and vegetables to putrify, as well as heat. The well informed practitioners who live in the south and western parts of America, who have many of them annually opportunities of examining this disease, have no doubt of its nature. I much suspect you will hardly find a dissenting voice amongst medical men, from Baltimore to New-Orleans, as to the nature of the yellow fever. The Medical Repository, published in New-York, and so ably conducted, has invariably combated the idea of foreign origin. I refer you with confidence to the Number published in June last; the Report of the Committee appointed at Mobile must be decisive to every unprejudiced mind. The official statement by the Medical Society of Maryland, gentlemen who, for practical knowledge and real science, stand at the head of their profession in this country, seems unanswerable. Were Sir James MacGregor, and Sir James Earle, placed in a similar situation with Mons. La Forte, I have not the least doubt that, with the honourable candour of that gentleman, they would have their belief in the contagious nature of it destroyed. Perfectly unintentional on their part, I fear their present opinion will be productive of much mischief in this country. Their opinions have been eagerly quoted by the contagionists. The idea of importation is more agreeable to the populace, who will always with reluctance acknowledge the insalubrity of their particular location, and, with still more reluctance, submit to the deprivations and restrictions in many cases absolutely necessary for their own preservation.

Every office depending on popular election here, we are too apt to suppress opinions not palatable to the public; and it is impossible to enact, and put in force any regulation, although their preservation depends on it, without the public sentiment in its favour: hence the great danger arising from mistaken notions in regard to our diseases. Some respectable physicians most strangely, and some men, much better acquainted with other business than with medicine, with which latter they unfortunately have a disposition to dabble, have taken into their heads to differ from the great majority of medical men on this subject, and have exultingly referred to the statements of these two honourable Baronets.

From the dirty state that I found New-York in last April, the accumulated filth of the winter still remaining in the streets, I should suspect that the idea of importation had numerous advocates in the city council; for, although the heat was intense, the mercury standing at 82 Fahr., no measures were as yet taken to secure the city from disease. But it is with reference to the new settlement making in the south and west, that this question will have its most important bearing. Much of those tracts, and especially the points most convenient for commerce, are low alluvia, and in the vicinity of marshes; yet often within a few miles, or even within one mile, very different locations in point of health may be made. In one case the settlement may become permanent, the citizens enjoy health and comfort; on the other hand, by an injudicious choice, after much property expended, the whole will have to be abandoned, or the inhabitants continue martyrs to disease and death: or, should the majority, after much suffering, become insensible to the operating poison, the place will still prove a grave to many emigrants. Now, if we believe in the local origin of the yellow fever, of which I have no doubt, some discrimination will be made in establishing a site for a future city; but if this disease is imported and propagated only by contagion, the site is of no consequence, and the convenience for commerce will be the only consideration, as has been the case at Constantinople, New-Orleans, Mobile, and many other places that must be within the recollection of those who attend to the situation of the different cities. From having formerly entertained so erroneous ideas concerning a disease that was making such havoc in two of the principal cities of the United States, and having found it impossible to collect any true history from the public prints, I have been led to admit, with many grains of allowance, the accounts we have had of the plague. It has struck me, that a city like Constantinople, in the vicinity of 20 square miles of marsh, situated at the outlet of an immense lake, with a level country in the vicinity, must much resemble some positions in America, and be annually subject to the worst kinds of malignant fever. This, conjoined with the want of police, the dirty and lazy habits of the Turk, who, believing in predestination, takes no precautions, must give the disease a more terrible character than even the yellow fever.

If I mistake not, the plague makes its appearance at Constantinople in June and July, and generally disappears in October and November; yet some cases are found through the season. Here is a strong coincidence with the malignant fever of America. I have met with some instances of yellow fever in midwinter, even in March. The last was a young man, who, by a severe exposure, brought on the disease. An English sailor, who saw him when sick, and laid him out, said he recognised the disease, as he had performed the same office for some of his countrymen who died of that disease in the West Indies. The symptoms described by Dr A. B. Granville are exactly those I have myself experienced and marked in a hundred cases, with the exception of carbuncles. I have seen even them, although rarely. Livid spots on the body are rather common.

I think Volney describes Egypt as being overflowed at a certain season of the year. The Nile begins to rise generally in April, and is at its height about the 25th of June. Egypt is generally an alluvial soil with a flat surface. The resemblance is striking between the Delta of Egypt and the Mississippi territory in America. When the Nile rises so as to fill the ponds, and wash away the putrifying vegetables, the bazars and shops are opened in Cairo, and the Franks leave their confinement. They are then relieved from the terror of the contagious plague, the same as our citizens in American towns, from the contagious yellow fever, when the first severe frost takes place, after which you will see the inhabitants of the Carolinas and Georgia crowding south, after having spent the sultry months in the more elevated regions of the north and east. No wonder that the Egyptians deified the Nile; it affords them both bread and health, insuring crops and arresting contagion. It has frequently struck me, in perusing the travels of different gentlemen, that wherever a place was famous for the frequency of the plague, there were marshes or pools in the neighbourhood, which, with us in America, would be suspected for sources of malignant fever. Let us consider for a moment the situation of Syria; it is, generally speaking, a plain, bounded on one side with mountains, on the other with the sea, and interspersed with pools, and fringed with marshes; but here the plague is frequent. The French army became infected; but, when they entered the Desert, on their retreat from Jaffa, regained their health, and their wounds healed; there were no marshes in the Desert. Egypt has been long celebrated for being subject to frequent, almost annual attacks of the plague. Let us advert for a moment to the topography of this celebrated country. It is an extensive level tract of alluvial soil. Volney says, nothing more resembles its appearance than the marshes of the Lower Loire, or the plains of Flanders. Again, all this part of Egypt is so level and so low, that we are not three leagues from the coast when we discover the palm-trees, &c.; and, beyond this, nothing is seen but a boundless plain, which, at different seasons of the year, is an ocean of fresh water, a miry morass, a verdant field, or a dusty desert. Again, a flat plain intersected with canals, under water for three months, verdant and boggy for three others, and dusty and full of cracks the remainder; a sun darting his rays from azure skies, almost invariably free from clouds; and winds almost constantly blowing. For six months of the year, the water of the Nile, the only water used in Egypt, is so thick, that it must have time to settle before it can be drank; and, during the three months which precede the inundation, reduced to an inconsiderable depth, it grows heated, becomes green, fetid, and full of worms, &c. Along the coast of Egypt, which, on account of its shallowness, can only be approached with boats, at a little distance from the sea, is a string of fresh water lakes; these receive the filth brought down by the Nile in its flood. The north wind, which blows the far greater part of the year, serves to prevent the river discharging its contents into the Mediterranean, where, by dilution, deposites might become harmless. The water is generally at its height about the last of June, at which time the whole country is submerged. When the Nile returns within its banks, every hollow or depression of the surface becomes a stagnant pool. Whether this depression is an original concavity, or has been the former course of the river, or the bed of an ancient canal, it affords a receptacle for the water, which, having no exit, is evaporated by the rays of the sun. The water has killed all vegetation, which now decays, mixes with the liquid, and gives its poisonous effluvia to the air. These tanks continue to pollute the atmosphere longer or shorter, according to their depth, some having that effect till the season of the next flood, when the waters of the Nile put a period to the agency; others, more shallow, having performed their duty, are dried up, richly covered with luxuriant vegetation, and are fully prepared for the same process next season. This infectious atmosphere becomes prevalent first in the month of November, and generally continues increasing in virulence till the inundation in June. Egypt is seldom refreshed by showers, but depends for moisture on the Nile; the overflowing of which is more regular than the transient passing of clouds.

In the account of the passage of the British or French army from the coast to Cairo, I have seen it observed by the narrator, that while the plague was raging in one village, the inhabitants of another, within a small distance, were entirely exempt, although no interruption of intercourse had taken place between them. It is also stated, that the Turkish soldiers were under no apprehension of getting the plague, but plundered the houses where it had been, and wore the clothes of those who died of this disorder. Let us now review the subject. It is agreed, that, generally, the plague begins to appear at Constantinople about the last of June; rarely more early. That city has 20 square miles of marsh in its vicinity. Although under a despotic government, the dogs and vultures enjoy as much liberty as the long-nosed quality, and perform the same duties as those do in the cities of the United States; and the streets of Constantinople regale the olfactory nerves as much as those of New York, Baltimore, Boston, or Philadelphia. Now, it seems the plague begins at Stamboul, about the time it ceases in Egypt. I do not know that we hear of a non-intercourse between the two countries, during the following months; yet it is rarely imported into Egypt till November, when the ponds and marshes of that country have prepared the atmosphere for its reception. Egypt being now prepared for it, the plague begins to abate at Constantinople, where the frosts have arrested vegetable putrefaction. It reigns now with uncontrolled sway over the alluvion of Egypt, where frost is not known, till the water which has fallen in Nubia and Abyssinia, conveyed by the Nile, again sweeps the surface of Egypt, and destroys the source of pestilence. The Franks then leave their confinement; the bazars and shops are opened; and Egypt is again willing to part with the fell destroyer to the Porte, or some other quarter of the world. Although there may be exceptions to this rule, I believe it will be allowed to exhibit the phenomena of plague on a general scale. Constantinople is in lat. 41 deg. 27 min., Cairo, lat. 30 deg.; which shows that the probability is, that different means may produce the same effect at the two places. It is not improbable that the excessive heat of Egypt would soon exhaust the moisture necessary for vegetable putrefaction, as the deserts on each side are found to be free from plague. Is it not remarkable, that the plague makes its appearance at the Porte about the same time that the yellow fever does in our cities,—that when winter sets in, either disease is scarcely heard of at these places? In Egypt, where it may be said there is no winter, the plague is arrested by the overflowing of the Nile. Do not these circumstances lead us to suspect, that the nature of the plague is not yet fully understood by Europeans in general? Stupid and superstitious as the Turks may be, yet self-preservation has so powerful a hold on the human mind, that I strongly suspect they have experience on their side for not believing in the contagion of the plague.

The true nature of the yellow fever is every day becoming better understood. I believe that there are very few well-informed men, either in the West Indies or in America, that have any doubts on that subject. The numerous settlements making in the south and west by an industrious, intelligent, and observing people, will throw fresh light on the nature of this disease. The report of a committee similar to that of Mobile, who have no preconceived theories to support, ought to have great weight in this momentous affair. If it does not operate as a warning to those who, in future, erect conveniences for commerce, not to use perishable materials in the construction of docks; those who persist in that dangerous practice will be guilty of self-murder, as well as accessories before the act, in the destruction of their fellow-citizens. During my residence among the marshes and swamps of the west, I watched the condition of two ponds near which I had occasion frequently to pass. They were near the outlet of a lake. When the waters were high, there was a free communication between the ponds and the lake. The waves of the latter passed into the ponds, and kept the water fresh; but when the waters began to lower, the waves drove up the sand or shingle on the beach, forming a dam across the outlet of the pond. If the season proved dry, and the lake continued to decrease in depth, the water-ponds gradually dried up; putrefaction began; they emitted a horrible stench; the easternmost and most shallow affected the senses often by the last of June, a fortnight before the westernmost, and would dry entirely up, cease to annoy the smell, and, if no rain fell, become verdant, with a growth of vegetables; but the other, whose bottom was on a level with the shallow part of the lake, although later in polluting the air, would continue the process till arrested by autumnal frost. I have known a whole village, in which there was not a sick person on the 20th of June, or indeed later, to be laid on their beds within 48 hours, evidently from the putrid effluvia emanating from these ponds, the fact being ascertained by a shift in the wind, which brought the exhalations directly into the place; and some of these people had every symptom of yellow fever.

It has for some time been my opinion, that a distinction ought to be made between contagion and infection. Thus a disease may be contagious, and not infectious, as psora and syphilis; it may be both as the measles and small-pox. I believe, that, whatever may be the original nature of a fever, if permitted to run a protracted course, it may, under improper management, become infectious; yet I am confident that this is generally within the control of the physician. Although I have, in consultation, seen cases where infection seemed to have been communicated, I have not, in a practice of thirty-five years, had a single case where fever was propagated in this manner.

I have found much benefit from the muriatic fumes; it certainly destroys the fetor arising from fever in a remarkable degree. With all the attachment for nosological distinction which I imbibed at the school of the respectable Cullen, I must say, that I have not unfrequently seen fevers commence with highly inflammatory and bilious symptoms, and gradually fall into the typhoid state. To those who have witnessed the epidemic diseases of America, the experiment made by Dr M'Lean in the Greek pest-house, and that by the Spanish physician at Havannah, were both most unphilosophically conducted. Had these experiments been made to show their liability to the ordinary causes of disease, they might have been satisfactory; but what sensible man will decide, whether they caught it by contagion or from the air? The contagionists will support one doctrine, the anti-contagionists another; but let a patient, labouring under yellow fever, be removed to a healthy part of the country, where the disease is unknown; let him be treated as fever patients ought to be; if he then communicates the disorder by contact, and it is disseminated over a healthy region, where it never existed before, I will then believe in the contagious nature of yellow fever; but, amongst the thousands who have been removed to the country, I have not heard of such an instance. Let a similar experiment be made with a person labouring under the plague, and the result will show itself. I am induced to believe that the plague in London originated in the filth of the city. From observations made accidentally, I am convinced that high temperature is not so necessary for the generation of yellow fever. In this I differ from some gentlemen who advocate the domestic origin. We know that heat alone will produce neither plague nor yellow fever; it must be combined with moisture; yet the water-carriers of Cairo are almost exempt from plague. Now, I believe heat and moisture are deleterious, only as promoting putrefaction. I have witnessed this going on at a low temperature, and a large family sinking under the effect, unconscious of the latent cause; indeed their sensation had gradually become insensible to the fetor, although the stench was intolerable to me, and first led to the discovering of a putrefying mass of vegetables, the exhalation from which a keen and cool west wind was forcing out of the cellar, and diffusing through the house. But I must stop, lest you should suspect me of labouring under a *cacoethes scribendi*, a malady almost as incurable as the plague or yellow fever. You will easily perceive that I am not much in the habit of committing my thoughts to paper. My hopes of recognising these observations in your excellent Journal, depend more on the novelty of your having a correspondent in the back woods of America, than in any thing new or valuable in my communications. Although I perceive some coincidence in the opinions of Dr M'Lean and mine, I can assure you, I never have perused the writings of that gentleman, which, from my remote situation, I have not been able to procure; all I know of his ideas is from the Medical Repository, published in New York, and from the pages of your Journal. If I am correct, he has lived many years in British India;—I have spent the best part of my life in the forests, and amongst the swamps and marshes of North America.

Utica, Oneida County, State of New York,
North America, Aug. 1820.

III.

Observations on Variola, Varicella, and Modified Small-pox. By James Reed, M. D. Kilmarnock.

The attention of the profession and of the public has been so much occupied, of late years, with discussions upon the eruptions of variola and varicella, that any remarks of mine might certainly have been dispensed with. The importance of the subject is my apology. The degree of security afforded by vaccination against the contagion of small-pox, is a matter of very high moment. It is not a question of theory, but one intimately connected with the existence and well-being of the human race. Small-pox is a loathsome and dangerous disease; and every thing which can alleviate its horrors, or lessen its fatality, assumes proportional consequence.

There is nothing in the communication which I have now the honour to make either very new or important. All that I aim at, is a simple relation of facts, as they fell under my own observation, or came to my knowledge in a way that might be relied on. This town is in the direct line of road from Ireland to the eastern counties; and Ireland seems the head quarters of small-pox. Many are the instances in which persons have brought thence the contagion, and been seized and carried off by the disease on their arrival here. I am not aware, however, that, at any former time, the contagion extended beyond its first victim; and I have, therefore, been at some pains in detecting the sources, and marking the different steps of its progress. In the following instance, the patient brought the disease from Glasgow, whence we have several times also been annoyed with contagion; and I may here remark, that, unless introduced from other quarters, it appears to me none have small-pox here.

It can hardly be necessary to describe what is understood by the terms Variola, Varicella, or Modified Small-pox. The last mentioned disease, in particular, having much of the character of variola, without its violence, duration or danger, has been of late frequently and accurately described and dilated upon; and the question of its existence, its origin, qualities and connexions, has been agitated with no ordinary degree of activity and talent. I have, therefore, the satisfaction of observing, once for all, that, to the best of my knowledge and belief, the opinions and experience of professional men hereabouts, on these points, coincide in great measure with those contained in the interesting accounts of Dr Thomson and Mr Hennen, given in your Journal of 1818.

Case I.—On the 20th April last, a young man, a stranger, of the name of M'Farlane, was taken ill here, on his way from Glasgow to Ayr. The house he lodged in was in one of the widest and best aired streets in the town. Next day he was confined to bed.—On the 22d, his brow and temples were thickly studded with a minute vesicular eruption, which increased gradually, though slowly, with much swelling and fever, and spread over the body and limbs, until it ended most unequivocally in small-pox, of an exceedingly severe and confluent kind. He was unprotected by any sort of inoculation, and had been infected in the city by sleeping in the same house with a child which, as he expressed it, "had the new kind of small-pox." On the 5th May, being the 13th day of eruption, he died. So brisk was the putrefactive process over this poor patient's body, for three days before death, that all that care and cleanliness could do, were unable to maintain the air of the apartment, or indeed of the whole house, in any thing like a tolerable state.

Case II.—About the 3d, two days before his death, a girl of ten years, in the same house, vaccinated by myself, and on whose arm there remained a well-marked cicatrix, began to show symptoms of infection. After smart fever, the vesicular eruption did make its appearance; and moderate chicken-pox, ending safely about the 8th day of eruption, was the consequence.

Cases III. & IV.—Precisely opposite, in the same street, a mother and an infant of two months, both unprotected, fell sick on the 5th; on the 8th an eruption made its appearance, which, in both cases, turned out small-pox. The disease in the mother became severe and confluent, and she fell a victim to it on the 18th, being the tenth day of eruption. On the poor infant the eruption was distinct and milder. The last of the scales fell off on the sixteenth day, leaving permanent marks, and it recovered in the usual time. The husband of this woman, himself protected by inoculation, had visited M'Farlane during his illness, and once or twice assisted his nurse in rendering him some friendly offices, and had thus carried home and communicated the disease which did not affect himself.

Cases V. & VI.—A little farther on, but still on the same side of the street, first one child of eight, and then another of ten months, became affected. A vesicular eruption appeared; but the alarm subsided when the disease was pronounced varicella. Both children had been vaccinated some time previous. Their recovery was rapid; but, in both instances, the eruption answered perfectly to the description of modified small-pox, and there could be but one opinion respecting its origin. Had not the infants been protected by vaccination, I am satisfied there had been no modification of symptoms.

Variola had been the consequence; and communication amongst such near neighbours could not be prevented.

Case VII.—M'Farlane's case being rather an uncommon one, had excited a good deal of attention, and brought visitors from various quarters. Amongst others, he had been seen, during his illness, by a young man from a village a mile distant. This person had been early vaccinated; but, after slight sickness, he now had his body covered with an eruption, which was said to resemble exactly that of the girl of ten years, which I have mentioned as No. II. I did not see him; but the occurrence took place on the 4th May, and ended on the 10th. I believe I should not have heard of him but for the next.

Case VIII.—In another part of the town, a married woman, of twenty-four years of age, inoculated in infancy, and with slight marks of small-pox in different parts of her body, after a pretty severe attack of fever, had a vesicular eruption, at first appearing on her face and temples, then on the arms, hands, lower limbs and feet, but which very partially extended to the body. The eruption on the face dried up about the fourth day, and soon scaled off. That on the extremities advanced slowly to maturation, increased in size, coalesced, and formed large and deep pustules, some of which were not dried up on the twelfth day. Had these, although not more numerous, been scattered over the body, the most incredulous would not have hesitated to pronounce the disease variola. Why the eruption was confined to the face and limbs, I cannot explain;—that it was small-pox, I shall not affirm. If so, the mildness of the complaint was perhaps referable to the influence of the former inoculation. This woman had inadvertently called at the house of the last-mentioned patient, two or three days before she was attacked, and had sat chatting to him about half an hour, and herself assigned this as the cause of her illness. She was the mother of two healthy children, both vaccinated by myself, and neither of whom were affected. In this case, the succeeding fever occurred on the tenth day of the eruption.

Case IX.—The only other connexion of small-pox which I have seen here, was a case apparently of varicella, in a boy of 5 years, vaccinated; the origin of which could not be traced, until the parents remembered that, some days before, a girl from Kilmaurs, and who had just recovered from the varioloid epidemic there prevailing, had been several hours in the room with the child. The eruption, in this case, was strictly vesicular, although many of the vesicles were of considerable size. They began to dry up on the fifth day, and soon disappeared, leaving no permanent marks.

Besides the above, several more instances of small-pox after vaccination have occurred here, mostly, if not in every case, the consequence of introduction from some other quarter. The disease, however, though occasionally appearing, has not spread;

it seems completely at a stand, and the alarm has subsided with it.

In Kilmaurs, a large village in our immediate neighbourhood, within these eighteen months about sixty cases of this eruptive disease have occurred. In several visits to the place, I had occasion to see and examine a considerable number of the patients. Of this number, one-sixth confessedly had not been vaccinated, and of these one died. Amongst the remainder, where the disease was modified by the vaccine virus, no deaths took place. A girl of twelve years, who formerly had small-pox without inoculation, now fell a victim to a second attack. The disease, however, seems at an end in this place, no new instance having occurred for several months.

There was a circumstance very striking in most of the cases which came under notice, viz. the imperfect manner in which vaccination had been performed. A slight scratch, in some scarcely visible, was all that remained to mark where the vesicle had been. There is, of late, a regular practitioner on the spot; but, in the instances now mentioned, the village midwife and teacher had been almost universally the operators. The disease was brought to Kilmaurs in April 1820, by a convalescent patient from Beith, where a number of instances had occurred.

In July 1820, a patient of mine, a soldier, belonging to a party of the 26th regiment, stationed in Kilmarnock, caught the contagion of small-pox, whilst on regimental business in Glasgow, and was taken ill on his return. He had never been vaccinated. The disease was severe and confluent. On recovery, he, without my permission, had himself transported to New Milns, his native place. The consequence was, the introduction of variola; and about fifty cases of the disease followed. Of these one-fifth were unprotected; and of this number two died. No deaths took place where vaccination had been performed. The disease has ceased altogether a considerable time ago. This statement I owe to Mr Lyon, the old and very respectable practitioner of the town of New Milns.

Having observed a statement in the public prints of the severe effects of a varioloid epidemic in the town of Strathaven in Lanarkshire, I took occasion, when in the neighbourhood about six months since, to call upon the medical gentleman there, and to ascertain the fact. Rumour, in this as in other instances, had greatly exceeded the truth. The epidemic in question was drawing to a close. In whole, about one hundred instances had occurred. Of them, one-eighth were unprotected; and of these three died. The character of the disease had been mild. No deaths took place amongst the vaccinated. The vaccine cicatrix, in some of the cases here, like most of those in Kilmaurs, was very small, though distinct; but, in all, it had been performed by the surgeon of the place. It was, however, pleasant to observe the respect paid by the disease to the diminutive cicatrix. It stood like a little island, separated and independent; and no papula, vesicle or pustule, touched its surface.

It is highly gratifying, amidst these instances of partial failure, to think what a vast proportion resisted the utmost exposure to the influence of variolous contagion. For one case in which vaccination has failed in any measure to secure the constitution, ten have shown themselves invulnerable, even where the mischief seemed most concentrated; and, as to death from small-pox, after regular vaccination, I personally know of no such event, neither have I heard of any well-authenticated instance in this part of the country. Very different must have been the issue, had *variola* thus broke in upon an unprotected population. With what a desolating march it had swept the neighbourhood, those best acquainted with its ravages are best able to conceive.

Were it at all necessary to adduce direct proofs of the speedy and effectual mode in which vaccination extends its influence, many might be brought forward. I shall shortly give one which I think exactly in point. Three years ago, a young man from this place, during a visit to Glasgow, amongst other objects of curiosity, was shown through the Royal Infirmary, in one of the side rooms of which lay a child covered with small-pox. The youth, who had never been vaccinated, owing to the obstinate prejudices of his father, felt an involuntary shuddering at the sight of a disease of which, till then, he had not formed an idea. A day or two after his return, he was seized with fever and pains, which I believed those of rheumatism, till, by dint of interrogation, the foregoing account was elicited. The eruption put an end to all doubts on the subject. So soon as this point was settled, his nurse, a fine looking woman of twenty-five years of age, of a clear complexion, lately married, and pregnant, mentioned that she had never been inoculated, nor had undergone the disease in any form. She was immediately vaccinated in both arms. The operation succeeded well; and, although she was about the patient constantly during several weeks, in a situation peculiarly unpleasant, surrounded by an atmosphere loaded with the sulphurous putrid effluvia peculiar to small-pox, she escaped with perfect impunity, and became, four months after, the mother of two healthy children. This case shows, I conceive very clearly, the advantages of vaccination. Without it, I see not how the most distant hopes of escape could have been entertained. Such was her own opision; and, in her peculiar situation, the infection of small-pox, in any shape, must have been a very unpleasant, most probably a dangerous occurrence.

From my own observations, from the experience of others, and from the accumulated evidence before the public, I am decidedly of the opinion advanced in your Journal, October 1818, that small-pox—the varioloid disease and varicella—most probably are, and ultimately will be found to be, one disease, differently modified and varying in degree. It was a pretty theory, that these eruptions occupied different orders of glands, and that each order could only be affected by its particular and specific poison. The seat of vesicular diseases, as varicella, was of course in the epidermis;—that of pustular, as small-pox, in the cutis vera;—modified small-pox, as a neutral disease, was entitled, I presume, to occupy the rete mucosum;—and thus the theory was complete. Hence it followed, that the pits or marks of variola only were lasting—varicella raised but the cuticle, and was evanescent. Experience, however, does not bear out this hypothesis. It is notorious, that of a crop of small-pox, much of the eruption passes away, without leaving any pits; whilst cases of unquestionable chicken-pox have been known to leave permanent marks; and Bateman remarks after Willan, of one of his three species, the conoidal, that "it frequently leaves, after scabbing, a durable cicatrix or pit."

We have, besides, well authenticated instances of small-pox in the unprotected, produced by this medium disease—eruptions mild and malignant, thus evidently arising from the same source. We have also in proof, decided severe small-pox giving origin to this disease, often trifling in its nature, and always short in its duration; and from this again has been reproduced severe confluent small-pox;—vaccination appearing the only modifying power, and affording the sole reason why the disease in one was severe, and in the other slight. The inference, therefore, I conceive legitimate, that diseases producing and reproducing each other, must be the same. Peculiarities of constitution, and anomalies of disease, may appear. Epidemics too may, in one situation or period, be severe, and in another mild. Like individuals, they vary in constitution as to time and place.

It has been urged, and perhaps not altogether without foundation, that the violence of this modified disease is much in the ratio of the previous affection of the system by vaccination, indicated by the size and appearance of the vaccine cicatrix. In other words, where the cicatrix is truly characteristic, the varioloid disease is mild; where less in size, and not so well marked, the complaint is more severe. Whatever truth there may be in this opinion, one thing is now certain, that perfect security is not always obtained even from the severest affection of the system, or completest cicatrix. In the 2d, 5th, and 6th of the cases I have mentioned, the marks were excellent and large; yet the poison, although neutralized, in some measure took effect. In the 8th, the mark of *inoculation* was perfect; yet neither did the system, in this instance, seem better secured. This would seem to indicate the protecting power of the vaccine and small-pox virus to be nearly equal; which is saying a great deal. In this peculiar case, too, the secondary symptomatic fever occurred on the 10th day of eruption. I am therefore satisfied, that the insecurity observable does not altogether arise from imperfect vaccination, as the Report of the National Vaccine Establishment for 1819 seems to affirm.

It is the wish, I believe, of the Directors of this Institution, that several punctures be made; and that one vesicle, at least, shall remain unbroken. On this point, I think I give the result of the experience and observation of my professional friends in this part of the country, when I say, that far too much stress is thus laid upon the mode of performing the operation. We are unable to conceive the system better fortified by one than by many vesicles. Nor does even the rupturing of the vesicle seem attended with those very bad effects predicted in lessening its protecting power; the contagion in question not appearing to affect more the child from whose arm lymph had been taken, than that on whose arm the vesicle had remained unbroken. A thoughtless operator, by abstracting too much matter, or a careless nurse, by destroying the texture of the ripened vesicle, and discharging its contents, may altogether prevent the intended effect; but neither of these do I conceive to happen once in an hundred cases.

An opinion has got abroad, that several other diseases, in particular measles, have become more extensively spread, and more virulent, since the introduction of the practice of vaccination. This arises, I am aware, from the notion, that the human constitution is imbued with at birth, or brings into the world, a certain morbid matter, which in former times escaped by the orifices of small-pox. In most cases, I believe that the absurdities of popular belief, especially on medical subjects, have their origin with the members of the profession; and, in this instance, the opinion I presume may be referred to this source. It is, however, scarce worthy a serious refutation. Independently of the gratuitous assumption, which is obviously a mere begging of the question, the fact is, that measles, as an epidemic, is of rare occurrence in this part of the country; and the impression on the minds of some of the oldest and best informed of my medical brethren, with whom I have conversed on the subject, is, that far from having become more frequent and fatal, the contrary is the case in both respects.

One excellent and unforseen effect has been the consequence of the appearance of this modified small-pox, *i. e.* the complete popular conviction of the efficacy of vaccination. So striking is the difference between the severity and danger of the original, and the mildness of the modified small-pox, that many parents, who have long and steadily resisted every admonition, are now coming forward, anxiously wishing their children vaccinated.

So great and decided, indeed, are the advantages arising from vaccination, that I conceive it ought to be made the subject of legislative interference, and a penalty inflicted on the wilful neglect of so important a duty.

On the whole, we have great reason to congratulate the profession, the public, and every friend of humanity, on the very fortunate and beneficial introduction of the practice. It has disarmed small-pox of its malignity—it has already saved the lives of thousands of our fellow-creatures—and it continues to extend its benign influence, notwithstanding much opposition, and many unworthy and unreasonable attempts at its suppression. Nor is it the least remarkable circumstance in the history of this singular discovery, that its most violent opponents should, contrary to all inclination and intention, have become its best friends, and that the very arguments adduced against the measure, affords the strongest inducements to its exclusive adoption; so that the abortive attempts to put down the practice, have tended only to establish firmer on its basis this grand safeguard of human life.

I intended, in sequel, a few remarks upon the vaccine vesicle itself, its characteristic marks, and various imitations, but these I leave to some future opportunity. I have to apologise for any inaccuracy of thought or expression in the foregoing observations. Professional avocation almost precludes systematic study and arrangement.

Kilmarnock, 1st September, 1821.

IV.

Case of Tetanus, arising from a Contusion on the Belly a fortnight after receiving the Injury. By George Barr, C. M. Surgeon, Kilsyth.

Joseph Wishart at Railfour, ætat. 20, by trade a wright, of a stout, robust, and plethoric habit, fell from a horse, and was trampled upon the belly by the animal. He felt the injury very severely at the time, and complained much of soreness about the right hypochondrium; but went about his ordinary occupation, making little or no particular complaint to his wife, for fear of alarming her. At length, about seventeen days thereafter, upon a Sunday evening, the 24th September 1821, he was all at once seized with tremendous universal spasms, bending the head and trunk in the form of a bow; of so great strength were the spasms, that three persons could with difficulty keep him in bed. I first saw him at seven in the same evening, being an hour after the attack; the spasms were recurring at intervals of five minutes. During the spasms, the bending of the body was such as completely to remind me of the archer's bow. The neck was stiff and immoveable; many of the muscles, more particularly the pectorals, felt rigid: The jaws were firmly locked, so that no force could open them. I forthwith examined the abdomen, and found the place struck by the animal very painful, and unable to bear the slightest degree of pressure without giving much uneasiness; and, what is remarkable, upon pressing a little more deeply, it was followed by a sort of convulsive jerk of the whole body. I then bled him to 50 oz. from the arm, *pleno rivo*. In about half an hour thereafter the mouth opened, and I gave him three drachms of tinct. opii. The spasms, which had been at first very strong and frequent, became, in consequence, less powerful, and recurring only every half hour. I repeated the laudanum to about a drachm after every spasm. At three in the morning, the pulse being full and strong, I took away 12 oz. of blood; and continued the tincture of opium, joined with two grains of camphor, after every attack. The spasms now returned about once in an hour, and not by any means so severe as they had been.

Throughout the whole of Monday the paroxysms returned once an hour, the jaw being completely locked during the spasms, and for a few minutes thereafter. The jaws, however, did open a small way, but remained rather rigid. Monday evening, 8 o'clock, I bled him to 20 oz. from the arm, the pulse being about 80, very full and strong. As he vomited the tincture during the day several times, I now ordered an opiate pill of four grains to be given after every spasm. I applied the nitric acid blister to the whole spine, which did well, but created great pain. The spasms now occurred every two and three hours. Matters remained in this state till Tuesday morning at nine o'clock. Left then some strong purgative pills, and three calomel powders, each 15 grains; one powder and three pills to be given every three hours till catharsis was produced.

Tuesday evening, 8 o'clock.—Has had seven stools through the day; and took, in all, 45 grains calomel, and nine purgative pills. Spasms recurring every hour and half hour, very severe. He took a very severe one in my presence, which required three persons to keep him in bed. I plainly foresaw, that unless something decisive was done instantly for my patient, the case would turn out to be fatal. I therefore gave him at once a drachm of the solid opium. In about twenty minutes thereafter he began to doze a little, though not to sleep; to complain of giddiness of the head, with some difficulty of breathing, which might in part arise from the crowded state of the apartment; the windows were in consequence opened; and the probable cause being mentioned, a number of the people began to retire. At ten minutes past nine he fell asleep; and shortly thereafter respiration became slow and very laborious, breathing four times in the minute. A little past ten o'clock, the difficulty of respiration was rather more increased and somewhat alarming, being occasionally also somewhat irregular. The patient continued in this state nearly for two hours longer, when I thought it proper to rouse him. He expressed a wish before that, of having a little sweet milk, which was allowed. On being raised to his breech, he said that he felt an inclination to vomit; on finding this, I urged him to take a draught of tepid water, which was immediately followed by full vomiting. Afterwards he expressed himself greatly relieved, and said, that but for the vomiting he must have died soon. He seemed to be aware that part of his distress arose from the opium. At one o'clock morning, no spasms having returned, I thought proper to retire, leaving directions with the attendants that no more medicine should be given although the spasms should recur, until respiration had become free and natural, and the disposition to narcosis should have gone off. Under these limitations, should he be again attacked before the morning visit, five pills more, of four grains each, were to be exhibited.

Wednesday, noon.—Pulse 100, and fuller; very drowsy from the effects of the opium, but is occasionally tolerably lively; and no bad symptoms seem to have followed the very large dose of opium given last night, further than what has been mentioned; on the contrary, the most beneficial effects seem to have followed the use of that medicine. There has been only one attack of spasm since last night, which happened at ten o'clock this forenoon; thus making an interval of fourteen and a half hours between the spasms. Much spasmodic twitchings of the muscles of the face, more particularly frequent before the last spasm, which was a very moderate one. Mouth already sore, from the effects of the calomel given yesterday. Took 16 oz. of blood, till the pulse became weak and feeble. No more opium to be given till another spasm take place, and that only in the event of its being a severe one; then, however, to give a scruple of the solid opium, and to be repeated after every severe spasm, unless much drowsiness take place. Painful side of abdomen now easy, and able to be pressed upon without occasioning hardly any pain. One hour after the bleeding, pulse 130 in the minute, small.

Wednesday evening, 10 o'clock.—No spasms; mouth pretty sore; much headach, perhaps from the effects of the opium. Ordered chicken soup.

Thursday morning, 9 o'clock.—Pulse 100; mouth still sore, and the saliva flows gently; much headach; perspired much through the night, and slept tolerably well; feels all his joints and limbs sore; no attack since yesterday at 10 o'clock forenoon, being twenty-three hours from the last spasm. No laxative allowed to-day, lest the opium be carried too speedily out of the system; took some tea and biscuit, as also some of the chicken soup. Now that he had been somewhat recovered, he mentioned to me some circumstances concerning the manner of the attack of this formidable malady. On Sunday last he had been out walking, and, feeling himself somewhat sick and drowsy, came home and went to bed; lay for ten minutes, then vomited some frothy green-looking fluid; felt at this time upon the pained part of the abdomen, which had been trampled upon by the animal, a jagging sensation, as if pricked with pins. Felt, immediately after that, a pain going down the thighs and legs to the very toes, and at the same time a pain going up the back, towards the head. Says that same day had felt a tightness about the throat, and a slight difficulty in swallowing; that after the first spasm, the belly rose up like a drum just about to burst, to use the patient's own expression. That part of the belly which had been struck by the horse was very painful the whole of Sunday, and for some days previous; so much so, indeed, that the patient was unable to kneel and tie his shoes, without producing the most acute pain.

Saturday.—Mouth easier; feels himself much better, and is doing well; no return of spasms; pulse natural.

20th October, 1821.—Is now quite well, and following his ordinary occupation.

I was led to the treatment in this case, by some previous opinions I had formed on the nature and cause of tetanus in general. I conceived that the disease might have arisen from the lesion, or irritation of some nervous filaments, and which irritation propagated along the course of the nerve into the medulla spinalis, might be followed by inflammation either in the substance, or in the delicate membrane lining that body. Hence the method of cure,—phlebotomy, which I know has been lately recommended, although expressly forbid by many of the highest authority. There can be no doubt that sections of the spine, in tetanic cases which had proved fatal, would tend to throw some light on the nature of the complaint. It must however be added, that in this case the blood drawn did not exhibit the buffy coat so usually noticed in inflammatory cases; but I do not conceive this to be a proof that inflammation did not exist. Independently, however, of this, the use of blood-letting in tetanic cases may be accounted for on other grounds. In cases where the spasms are frequent and strong, and the subject robust and plethoric, profuse blood-letting, by inducing great debility, will assist the opium greatly in checking the spasms. It seems necessary that a state of complete relaxation and debility be induced:—this, bleeding and large doses of opium will effectually bring about. It appeared evident to me at the time, that the bleeding enabled the opium to act more powerfully on the system and the disease. In the case here related, its violence was such, that, in my opinion, neither the bleeding nor the opium, separately used, could have effected a cure.

V.

Observations on the Disease usually termed Puerperal Fever, with Cases. By WILLIAM CAMPBELL, M. D. Fellow of the Royal College of Surgeons, and Lecturer on Midwifery, &c. Edinburgh.

THE disease to which professional men have been pleased to apply the term Puerperal Fever, has, in all ages, proved so great a scourge to women in child-bed, *that it becomes the duty of every practitioner, who may have been at all successful in treating it, to communicate the result of his practice to the profession.* The fatality of this disease has been marked, in the strongest language, by some of the most distinguished professional men of the last and present centuries. Dr William Hunter, whose unwearied zeal for the improvement of medical science was no less to be admired than his extraordinary talents, and whose memory must be for ever revered by the profession, asserted, that " puerperal fever caused the death of two-thirds of those women who died in child-bed." Dr Hulme, who wrote an admirable treatise on this subject, declared, " That the fatality of the puerperal fever was such, that it should be equally dreaded with the plague itself." That judicious practitioner, Dr Denman, was of opinion that " puerperal fever occasioned the death of much the greater part of those women who died in child-bed." Another eminent teacher of midwifery in London, who wrote on this subject, observed, that " those medical men, whose age and experience were great in the diseases of puerperal women, were staggered at the fatality, and perplexed and embarrassed in the treatment, of the disease."

Unfortunately for suffering humanity, the records of medicine, in this as well as in other countries, show but too clearly the justness of the above assertions; for, in some instances, all who were attacked fell victims to it; while, in others, not above one or two out of a great number recovered. When it manifested itself at the Hôtel Dieu of Paris, in 1746, Monsieur Malovin expresses himself in the following words—" Dans le mois de Fevrier, de vingt des ces femmes malades en couches en peine en echapoit-il-un." Dr William Hunter was in the habit of informing his pupils, that, " in the space of two months, out of thirty-two patients who were seized with this disease, only one recovered." In the Lying-in Ward of the Royal Infirmary of this city, while under the directions of Professor Young, all who were attacked with it in the epidemic season died. And when it appeared in the Lying-in Hospital in 1814–15, only one out of nine escaped. In a word, the mortality of the disease has been generally so great as to induce some high authorities to declare, that two or three members of the profession, who had been more fortunate in their treatment than others, must have deceived themselves, and that the disease described, and so successfully treated by them, was quite of a different nature to puerperal fever. In this light we are taught to view the productions of Drs Leake, Denman, Gordon, Armstrong, and Mr Hey.

I shall not pretend to say any thing in support of the accuracy of the above gentlemen's cases, for they will speak for themselves; and if any person who is determined to decide with impartiality, will merely compare them with those of Dr Hulme, who is allowed to have really met with the disease, and to have described it most accurately, I think he would find it difficult to point out wherein the difference exists. In a profession like ours, where we are all supposed to be toiling for the general good, prejudices or opinions long cherished should never deter us from paying due attention to the discoveries or improvements of the junior members of the profession. In medicine, however, as in other sciences, it is to be regretted that the prejudices of its members have not unfrequently impeded its advancement; and on no occasion has this been more conspicuous than the present, as may be seen by comparing the results of different practitioners' practice.

I should conceive, and I suppose there are few of the profession who will not agree with me in saying, that when we have a rational theory for any disease, deduced from the actual examination of the bodies of many who have fallen victims to it, and this theory afterwards more fully confirmed by practice, as has been most satisfactorily done by several, but more particularly by Dr Gordon and Dr Armstrong, it is certainly our duty to put this theory still further to the test of experiment, in defiance of our own opinions. In opposition to this, it may be urged by some, that the practice recommended by the above gentlemen has been tried and found unsuccessful. No doubt it has been tried and proved unsuccessful; but from what reason? because 12 or 16 oz. of blood have been detracted in the advanced stage of the disease, when, in fact, 60 or 80 oz. should have been taken away at the commencement. That this has been actually the case, people of moderate research are well aware of; for Hippocrates himself recommends bleeding; and it has been hinted at or spoken of by every physician of any character since his time, but practised as sparingly by some, or directed under such strong cautions by others, as to have rendered it useless when had recourse to, or to have paralysed some of the profession to such a degree as to relinquish it altogether. Some have ordered the veins of the ham, ankles or feet to be opened; and others have said, that we should not bleed at all, without the most urgent necessity, or without great deliberation. It is true, however, that others have had the boldness to assert, that a vein should be opened in the arm; and they have even gone so far as to recommend the operation to be repeated; but their language is still so guarded and obscure, as to render it extremely doubtful whether some of them have ever followed the dictates of their own inclinations. To this last point, however, I shall attend more particularly hereafter.

Although it cannot be doubted that partiality for opinions long cherished has contributed to multiply the victims of puerperal fever, our want of success in the treatment of this formidable disorder is perhaps to be somewhat ascribed to the discrepancy of authors on this subject; for of all the diseases which have engaged the attention of the profession, from the time of Hippocrates to the present day, there is none which has given rise to more speculation and contrariety of opinion. Hippocrates gives a very accurate description of this disease, although not under any particular appellation; he considers it to be an inflammation of the uterus, and to be caused by obstruction of the lochia, as may be understood from the following passage. "Si vero non processerit purgatio, continget ipsam febrire, et horrorem habere, et ventrem magnum esse; et si ipsam attigeris, totum corpus dolere, maximè si quis ventrem attingat: et alias atque alias stomachi dolore vexatur, et lumbos dolet, et cibi fastidium, et vigiliæ, et punctura adest. Postea quinto aut septimo die quandoque venter turbatur et secedunt nigra, et valdè graveolentia alias atque alias, et urina velut asinina. Et secesserint, videtur sibi melius habere, et curata brevi sana sit: sin minus, periclitabitur profluvio ventris forti ipsi illapso. Et puerperii purgamenta ipsi occultabuntur." The above quotation, while it convinces us that Hippocrates was well acquainted with the disease under consideration, at the same time furnishes us with a striking instance of the superior penetration and judgment of that great physician. The condition of the pulse, and the appearance of the countenance, seem to have been attended to with equal care; for he observes, in another place—"Pulsus debiles sunt, et aliquando acuti, et alias attolluntur, alias deficiunt. Hæc patitur incipiente morbo et sic habet. Temporis autem progressu, cavæ faciei rubescunt." Of the same opinion with Hippocrates, respecting the nature of this disease, were Galen, Celsus, Ætius, Paulus Egineta, Avicenna, Raynalde, Felix Platerus, Sennertus, Riverius, Sylvius, Mauriceau, Sydenham, Boerhaave, Van Swieten, La Motte, and Hoffman; together with Jussieu, Villars, Fontaine, Pouteau, and Denman; as well as many others, both on the Continent and in Great Britain. Others supposed the disease to be an inflammation of the intestines, omentum, and mesentery; and Hulme, who was of this opinion, expresses himself in the following language. "The immediate cause of the puerperal fever, is an inflammation of the intestines and omentum. For the truth of this assertion, I appeal to dissections." La Roche and Leake entertained similar sentiments. Willis, Levrèt, Puzos and Doublet, considered this fever as one of a peculiar nature, and proper only to the state of child-bed. Willis expresses himself nearly as follows—"The fevers of women in child-bed are attended with much more danger than those which happen in common, and differ very materially from a simple and putrid synochus. According to these authors, this disease is caused by metastasis of the milk. White imagined puerperal fever to be of a putrid nature; in which opinion Peu, Tissot, La Roi and others, have concurred. White has the following passage. "When a woman is in labour, she is often attended by a number of her friends, in a small room with a large fire, which, together with her own pains, throw her into profuse sweats; by the heat of the chamber, and the breath of so many people, the whole air is rendered foul, and unfit for respiration. This is the case in all confined places, hospitals, jails, and small houses inhabited by families, where putrid fevers are apt to be generated, and proportionally the most so where there is the greatest want of free air," &c. Kirkland considers this disease sometimes a putrid, and sometimes an inflammatory affection. Petit and Selle considered the puerperal fever to be of a complicated nature; and Walsh, who is of the same opinion, expresses himself in the following terms. "In reality, it is no other than the common infectious fever, complicated with a more or less extensive inflammation of the peritoneum;" and in another place he says, "We look upon the puerpetal fever as a form of the common synochus or typhus." Others again suppose, that puerperal fever is owing to some derangement of the biliary organs, and therefore consider it to be of a bilious nature. Among this number are two or three of the Continental practitioners, such as Finck, Stoll, and Doublet. The most generally received opinion now is, that the disease under consideration is only peritonitis in the puerperal state, modified by various causes and circumstances, and produced by infection or casual occurrences. Many authors on the Continent, as well as in our own country, are converts to this last opinion; such as Walter, Johnston, Forster, Cruickshanks, Bichat, Pinel, Gardien, Capuron, Gordon, Armstrong, and Hey.

From a review of the sentiments of the different authors whom I have quoted, it will be seen that no less than seven different opinions have been entertained respecting the nature of puerperal fever; *first*, that it is inflammation of the uterus; *secondly*, that it is inflammation of the abdominal linings and intestines; *thirdly*, that it is simply peritoneal inflammation in the puerperal state; *fourthly*, that it is an affection *sui generis*, and peculiar only to lying-in women; *fifthly*, that it is a putrid fever; *sixthly*, that it is a bilious fever; and, *lastly*, that it is peritoneal inflammation with typhus.

I shall now make a few observations upon the first, second and third, of these opinions, as they all relate, more or less, to inflammation of the abdominal viscera. With respect to the first of these, I have had indubitable proofs, both during life and after death, that the uterus may be implicated in the disease, and that to a very considerable extent. In the commencement of the disease, in many of the cases which I shall detail, the patients complained of pain sometimes acute, sometimes obtuse, in the lower part of the abdomen; and the uterus, much enlarged, could be distinctly felt through the abdominal parietes. Along with this, there was severe pain complained of in the region of the ovaries—sometimes in one iliac region only, at other times in both; and it was not until the disease had existed for some time, that the pain advanced towards the umbilicus, and became general all over the abdomen. After death, this opinion was still further confirmed; for, in several of the cases, the uterus was interspersed with bright red patches, as if injected with fine red wax, while its appendages, particularly the ovaries, appeared to have escaped the disease entirely; but, in two of the cases, the ovaries had been almost destroyed by suppuration, while the uterus suffered comparatively little.

In answer to the second and third opinions, I may observe, that when the uterus, or its coverings and appendages, are affected with inflammation, it will require very little stretch of imagination to suppose, that the excitement will pass very soon from the uterus to the peritoneum and intestines; or again, when the peritoneum is first affected, that the inflammation will spread from this last to the uterus; so that the advocates for the first, second, and third opinions, may be right at one stage of the disease, but wrong at another. There is not the least doubt, if the disease gains ground in defiance of our remedies, that the omentum, mesentery and intestines, will become affected as the disease advances; but they only become so progressively, by the inflammation spreading from one point to another,—from the uterus to the peritoneum, and from this last to the intestines, and other parts said to have exhibited signs of disease, or *vice versa.* If we deny that inflammation can spread from the peritoneum to the uterus, or from the latter to the former, we may equally deny that the brain can become affected when its membranes are inflamed; for the case is nearly parallel. Whether it be the uterus itself, or its peritoneal coat only, that is the primary seat of disease, it will, in my opinion, be difficult to determine; for it may sometimes be the one, and sometimes the other; but a knowledge of this fact can be of little moment in a practical point of view; for, whichever be the first affected, the treatment must be the same. In April 1819, I attended a young married lady in her first pregnancy, in whose case the lochia began to diminish on the seventh day after parturition, and were totally suppressed on the tenth; and it was only after the discharge had disappeared entirely, that she complained of acute pain, and the other concomitant symptoms of inflammation. In May 1820, I attended a stout healthy young married female in the middle ranks, in whom the lochia became obstructed on the fourth day after delivery, when she was seized with severe abdominal pains, succeeded by tumefaction of the abdomen. In both cases, the patients were unable to nurse. The milk disappeared entirely, although in each the secretion had at first been abundant. From these, and many other cases of a similar nature, I may probably be excused for drawing the following conclusions; viz. that where pain succeeds suppression of the lochia, the primary seat of the disease will be the uterus; but where the pain is the primary symptom, that the primary seat of the disease will be the peritoneal covering of the uterus, the peritoneum generally, or the intestines.

As to the puerperal fever being an affection peculiar to childbed, this is an idea which appears to me so inconsistent, that I shall simply pass it over with the following quotation from the work of a very able teacher of midwifery in Paris, which will sufficiently show the absurdity of the notion, and save me the trouble of making comments which might be thought illiberal. "Rien de plus absurde, de plus chimerique, ou de plus contraire à l'esprit d'analyse et d'observation, que l'idée d'une fièvre puerperale, c'est-à-dire, d'une fièvre essentielle ou propre à la femme nouvellement accouchée. Pour qu'une pareille maladie meritât le titre qu'on lui donne, et la place que certains auteurs voudroient lui assigner dans les cadres nosologiques, ne seroit-il pas necessaire qu'elle fût toujours, dans tous les tems, dans tous les lieux, et chez toutes les femmes, produite par les mêmes causes, accompagnés des mêmes symptomes, et avantageusement combattue par les mêmes remédes. Or il s'en faut bien que la fièvre qui suit les couches reunisse cette triple identité; il semble au contraire, que les écrits ne se soient multipliés sur cette pretendue maladie, que pour en laisser entrevoir le vague, l'incertitude, et le peu de realité; tant on y trouve d'idées disparates, et pour ainsi dire, contradictoires!"

From these remarks I may now pass on, before taking notice of the other opinions respecting the nature of this disease, to consider the propriety of calling it Puerperal Fever, the first invention of which has been ascribed to Strother, who wrote in 1718, and who entertained the same opinion respecting its causes and nature as the ancients. A moment's consideration will show how inapplicable this term is, particularly to a disease which has been thought to be peculiar to child-bed; because it simply implies a fever in the puerperal state, and is therefore as applicable to Ephemera, Milk Fever and Typhus, as it is to the disease at present under consideration. Others again think, that it should be called Peritonitis; and Gardien observes, " La denomination de Peritonite que l'on a commencé à appliquer en France à la maladie des nouvelles accouchées connue sous le nom de fièvre puerperale, depuis que l'on a commencé à étudier d'une manière isolée les lesions des diverses systêmes d'organes est bien plus précise: cette manière de considerer la fièvre puerperale est parfaitement d'accord avec l'expérience, et les phénomenes pathologiques; on pourroit à juste titre reclamer la priorité de cette reforme en France pour le Professeur Pinel, qui, le premier, a dit expressément que la fièvre puerperale étoit une phlegmasie de la membrane sereuse de l'abdomen, quoique on en ait fait hommage à Bichat dans plusieurs Dissertations."

I most cordially coincide with Pinel in thinking, that Peritoneal Inflammation is a proper term to be applied to many cases of the disease, although, at the same time, it cannot be denied that the uterine system is as often the primary and chief seat of the disease. We may therefore, in my opinion, with more propriety, call it Abdominal Inflammation occurring in the puerperal state. If people will lay aside theory, and trust to the evidence of their senses, they will find this verified by examining the bodies of those who may fall victims to the disease. And what corroborates this opinion still further, is, that the practitioners who were at all successful in their treatment, were those who treated it fearlessly as inflammation. But if practitioners will only look upon it as an inflammatory affection, and treat it vigorously as such, I care not what name they may apply to it; for this alone will soon bring every one to a just sense of his duty, and save many valuable lives to society. I am aware that this opinion is denied by some of the most eminent teachers and practitioners of the obstetric art; but certainly not upon any just grounds. One person says, that in the true puerperal fever, the lochia are never suppressed, while in peritonitis they are always so. Another, of no less celebrity, observes, " It is important to distinguish puerperal fever from simple peritonitis, which may generally be done by attention," &c. With regard to these opinions, I have to observe, in the first place, that the condition of the lochia in puerperal fever has been variously described by every member of the healing art, from the time of Hippocrates to the present day,—some saying that they are diminished in quantity; others, that they are quite suppressed; while a third individual declares positively, that they invariably remain unaltered in the genuine puerperal fever. In some of the cases which I have had under my care, the uterine discharge was diminished; but in one case only was it entirely suppressed. Even Dr Hulme, who is allowed to have met with the disease, says, that "the lochia, or usual discharges, are diminished in quantity;" and in another place he observes, "that at the beginning of the distemper, there is generally more or less of a suppression of the lochia." I should therefore suppose, that the great variety observed by different authors in the appearance of the lochia, should be enough to show how little we ought to rely on this point as a diagnostic. No doubt, one person is more accurate in his observations than another; but when he exceeds all others in accuracy—some of superior, and some of equal talents with himself—I am not certain how far we are justified to rely upon his statements. There is no occasion on which it is of greater importance for a physician to be able to distinguish properly the diseases under which his patients are labouring, than in the puerperal state; because many of the puerperal diseases are of a most formidable nature, require prompt decision and vigorous treatment. But, so far from any bad results having ensued by confounding puerperal fever with peritonitis, this pretended mistake has, on the contrary, been attended with incalculable advantages, for many lives have been saved to society in consequence; so that in this case it is a deviation from the general rule. As to the facility with which a line of demarcation can be drawn between the two diseases, I have merely to remark, that the late ingenious Dr John Clarke, anxious as he was to accomplish this object, completely failed in the attempt; and that the French practitioners of the present day, with all their ingenuity and acuteness of observation, have been satisfied that this distinction is impracticable, useless, or hurtful.

The opinion of this disease being a putrid fever, has been so completely disproved by the result of those gentlemen's practice who treated it upon this principle, that such sentiments are now very justly ridiculed by most practitioners; and I have no hesitation in saying, that it was to this opinion our former unsuccessful results in the practice of this disease should be in a great measure attributed; for, until Dr Gordon of Aberdeen's admirable treatise on this subject appeared, "the pen of writers did little more than record the times and places when and where it proved most fatal, the appearances it put on, its symptoms, its devastation, and a variety of modes of treatment that had no certain success."

As to this affection being a bilious fever, I suppose the coffee-coloured vomiting, together with the diarrhœa sometimes observed in the disease, were the appearances which gave rise to this notion, the same as was formerly the case in yellow fever; but, with the exception of the diarrhœa, and what is rejected by vomiting, neither the other symptoms during life, nor the appearances on dissection, demonstrate any thing to prove this opinion; on which account, it should be rejected as purely speculative. It is true that, in some cases, the peritoneal covering of the liver has been found in a state of inflammation; but the organ itself was unaffected. Monsieur Doulcet on the Continent, and Walsh in this country, treated the disease upon this principle, and were astonishingly successful in their treatment. The former says, that "all his patients, to the number of 200, recovered by the practice employed, except six, who could not be prevailed upon to follow it;" and the latter, that his "practice was followed by an uninterrupted success." Notwithstanding these successful results, it is remarkable, however, that almost every one who has written upon this subject since the time of M. Doulcet, condemned the practice; which further shows, that there is but little foundation for this theory.

The last theory I am to notice is, that of puerperal fever being "merely typhus complicated with a more or less extensive inflammation of the peritoneum." It has been observed by the best authors on this subject, that the disease is very insidious in its attacks; which observation I have had an opportunity of corroborating in many of the cases I have met with. In some of them, the abdominal pain was so inconsiderable, that the patients would not have complained of it, had they not been questioned particularly on this point; and then it was only described as a general soreness of the abdomen, and not as an acute pain. In most cases, however, these feelings were rendered sufficiently acute when pressure was made on the abdomen. All of them, except one or two, were preceded by so distinct a rigor, that patients never failed to mention it. It was this circumstance, with the state of the pulse and appearance of the countenance, that excited my alarm in the generality of the cases; and my suspicions were further confirmed, by inquiring about the state of the abdomen. So insidious, indeed, is the primary attack of the disease in some cases, that there are not wanting instances of its having been suffered to proceed to an alarming height, before the attendants were even aware of the existence of indisposition, and before it was thought necessary to call in medical aid,—the patient's complaints being confounded with ephemera, or after-pains. * The practitioner then called in might, without fear of contradiction, say that such patients laboured under typhoid symptoms; but these symptoms are the consequences of neglected inflammation, or, in plainer language, the effects of mortification supervening on inflammation; and precisely the same thing will be observed in every case where inflammation terminates by the destruction of the part affected. Accordingly, Dr Gordon of Aberdeen very properly observes, that "the puerperal fever is always inflammatory at the beginning, and becomes putrid only in its progress." And, "that this putrescency is only the effect of inflammation neglected or improperly treated." I am perfectly satisfied that this excellent practitioner has, by this last opinion, furnished us with the real nature of puerperal fever; and that it is only by being called when the disease is far advanced, and its stages confounded, that we can explain how any person in his sound senses could assert that there was any thing typhoid in this affection, more particularly at its onset, when every symptom on the contrary indicates, in the most decisive manner, that it is a disease of high vascular excitement. Besides, as already observed, the mortality of the disease, when treated from the commencement as a fever complicated with typhus, and its success when treated as an inflammatory affection, should have been sufficient to eradicate deep-rooted prejudices, and convince those who are still undetermined.

With respect to the causes of this affection, the sentiments of practitioners have been no less at variance. The susceptibility of the system to disease in the puerperal state, as well as the changes consequent upon parturition, must be considered

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* One of the cases which I witnessed proved fatal from this very circumstance. The patient alluded to aborted between the second and third month; being then pregnant for the seventh time. She felt herself so well on the second day after, that she went to the washing-green; and, on her return home in the evening, was seized with a violent rigor, which, by herself and those around her, was considered as the forerunner of a weed. On this account, it was not deemed necessary to call any medical aid, particularly as there was no one in attendance when she aborted. The rigors were followed by abdominal pain, which gradually increased in severity; and two days afterwards, my friend Mr Kennedy, surgeon, was sent for, who, from a sense of the alarming situation in which he found the patient, requested me to see her along with him. I accordingly visited her on the 14th of October, the afternoon of the day on which Mr K. had been called; but she was then too far gone to support bleeding in any form, and sunk the following evening. We obtained leave to examine the body in this case; and the only point in which it differed from the others was, that the evidences of inflammation throughout the whole abdominal cavity were far greater, and that the intestines were particularly affected, more so indeed than in any of the other cases.

as giving a predisposition to inflammation. From the moment gestation has taken place, the sensibility of the whole system is progressively excited, as may be remarked from the facility with which females in a state of gravidity are affected by the most trivial impressions, but more particularly when taken by surprise. The ease with which abortion is produced in some cases, is a strong proof of this; and the facility with which ephemera and some other affections are produced in the puerperal state, is a proof equally striking of the extreme sensibility of the system after parturition. Another cause which must powerfully predispose to inflammatory affections is, the plethoric condition of the system after parturition. When the contents of the uterus have been evacuated, this viscus contracts itself immediately after to such an extent, as to diminish very much the diameter of the uterine vessels, by which they are prevented admitting the same proportion of blood which they received and circulated before delivery. In consequence of this change, therefore, it is not only the parts in the immediate vicinity of the uterus which are in a state of congestion, but the whole system must partake more or less of the same condition. The bad effects which might arise from this superabundance of blood circulating in the system, are wisely counteracted by the continuation of the uterine discharge, as well as by the determination of blood which takes place towards the mammæ to perform the secretion of milk. But when any of the exciting causes are applied, before the determination of blood from the uterus to the mammæ takes place, it is obvious that inflammation will be easily excited, the uterus and parts connected with it being still in a state of congestion with an increased distribution of the nerves, and therefore very prone to inflammation.

I may here state, that all these patients, to the number of five, who were seized with this affection after abortion, recovered, except the one to whom I was called by Mr Kennedy; and that four also recovered in whom it had been late of appearing after parturition. The former, as well as some of the latter, did not require such active practice as those patients who were attacked very soon after delivery at the full time. These facts must be allowed to give great weight to the foregoing theory; for, in the first set of patients, the volume of blood circulating in the uterus, and parts connected with it, could bear no proportion to that at the full period of gestation; and in the cases where the disease appeared so late as the fourth, or from that to the sixth day after parturition, the quantity of blood in these parts must have been considerably diminished previous to the attack. The patients in whom the disease manifested itself so early as from the first to the third day after delivery, suffered most; for we lost but one patient where the disease was longer than this of showing itself. The disease was also milder when it supervened on abortion, for Mr Kennedy's patient was the only one who died. During the time this epidemic prevailed, I had eight patients who had uterine hemorrhage to some extent after parturition, but none of them had even a threatening of the disease, —a circumstance remarked by other practitioners, and another strong fact in favour of the theory advanced.

Dr Hulme, who was of opinion that the real nature of puerperal fever consisted chiefly in inflammation of the omentum, considered the pressure exerted by the enlarged uterus upon the intestines and other circumambient parts, as the principal predisposing cause, by impeding the circulation. If this could have any influence, puerperal fever should be of much more frequent occurrence than it is, and women bearing very large children, twins or triplets, should scarcely ever escape being seized with it; while, on the other hand, as Dr Leake very justly remarked, women during pregnancy would be as subject to it as those lately delivered; which is contrary to experience.

The exciting causes were thought to be still more numerous, such as suppression of the lochia, translation of the milk from the mammæ to the abdomen, and infection, together with a number of other causes which are known to excite inflammation in ordinary cases. Obstruction or suppression of the lochia was the cause assigned by the ancients for puerperal fever, in which opinion I have no doubt they were sometimes correct; while in other cases it is not less certain, that what they looked upon as the cause was merely the effect. But the principle upon which they supposed inflammation to be caused by suppression of the lochia, is quite inconsistent with our present physiological knowledge. Lusitanus expresses himself in the following words on this subject. "Suboritur autem febris hæc, aut ex suppressis lochiis, aut ex eisdem non suppressis solum, verum etiam suppuratis; quippe dum supprimuntur aut diminute fluunt, quia os uteri occluditur a partu, vel contorquetur ob sanguinis copiam ibi conclusam, grumescere necesse est, aut putrescere; dum autem putrescunt, febres ac rigores magis fieri, quia ex putrescentibus in utero humoribus cor incalescit. Aut etiam febres ex morboso apparatu preexistenti, difficilive partua ut ex lactis abundantia," &c. Sennertus and Riverius imagined, that there are certain impurities collected in the veins of the uterus and other parts of the body, during gestation, which were purged off by the lochia, and that, in the event of this discharge being suppressed or diminished in quantity, the consequences might be very serious, from these impurities being retained in the system. I have already observed, that the plethora resulting from the superabundance of blood circulating in the system after parturition, is in some measure removed by the uterine discharge, as well as by the determination which takes place towards the mammæ; so that when this discharge is prematurely suppressed, the uterus and parts connected with it must remain in a state of congestion; and, upon the application of some of the exciting causes, as for instance passions of the mind and the exhibition of stimuli, inflammation will be easily produced. Premature suppression of the lochia, therefore, should rather be considered as a powerful predisposing cause; and if it ever produces inflammation, as I have no doubt it occasionally does, it must be in the manner above explained, and not as advanced by the ancients. At the same time, I must not forget to mention, that I have often met with cases among the lower orders of society, where the system is by no means so susceptible as among the better ranks, and where the lochia disappeared very suddenly upon the third or fourth day, without being followed even by any unpleasant symptom.

The idea of puerperal fever being occasioned by metastasis, or translation of the milk from the mammæ to the abdominal cavity, originated with Continental practitioners; and accordingly, Monsieur Levrèt observes, that, for the most part, this translation of milky matter happens about a fortnight after the disappearance of the milk. Van Swieten, who was of the same opinion, expresses himself as follows. " An non ex hactenus dictis concludi potest, metastasin lacteam producere posse omnia illa mala, quæ in textu enumerantur, et quæ lochiis suppressis tribui solent: prout, nempe, in has illasve partes deponitur materia lactea, et quidem tanto majori cum periculo, quanto partes, in quas deponitur, ad vitam magis necessariæ fuerint, uti etiam, si materia hæc deponatur in loco ex quibus difficulter eliminari potest, " &c. Doublet entertained similar sentiments to Levret and Van Swieten; and, according to Capuron, he carried his ideas on this point so far as to assert, that the milk ready formed existed in the blood previous to delivery. The effusions found in the abdominal cavity after death, and our limited knowledge, at that time, of the various terminations of inflammation, contributed to give origin to these absurd theories. Nothing, however, can be more at variance with experience than the idea of the absorption of the milk being capable of producing puerperal fever. This disease has appeared in by far the majority of cases, before there was any evidence of milk in the mammæ;

and every day we meet with cases, where females are obliged, in consequence of the death of their infant, and various other causes, to relinquish nursing suddenly; but no bad effects follow, except now and then a mammary abscess from inattention. Were it necessary, many other arguments might be brought forward to confute the above theory.

The next cause I am to attend to is infection, which is a point of vital importance to be accurately ascertained, and one upon which I feel very reluctant to declare my sentiments. I am the more reluctant, because this opinion is still supported by men of exalted stations in their profession, as well as by others, who, by their labours, have contributed, in a most conspicuous manner, to furnish us with correct ideas of this disease. On this last account, I regret much to be obliged to differ in opinion with Dr Gordon of Aberdeen, who thinks, that the infection by which puerperal fever is produced is of a most concentrated nature; for that he himself had been the means of conveying the infection from those affected to patients recently delivered, and that midwives and other persons had done the same. Similar doctrines are daily taught by others. With regard to this question, I cordially agree with Mr Hey in thinking, that if the disease, as met with by me, was at all infectious, it must have been so in a very inferior degree to that encountered by Dr Gordon and others. I think I may be allowed to speak upon this point with greater confidence even than Mr Hey; for the number of patients delivered by my pupils and myself was far greater, and the situations in which they were placed much more favourable to the dissemination of infection. All the patients who were attacked, but three, were residing in filthy, ill-ventilated houses; and, during the whole time the disease continued, we seldom had less than two cases daily, and at times the number of four or five, some of which were people living in the most confined filthy situations, in houses such as the West Port, Cowgate and Canongate, places which must be looked upon as favourable to the presence of infection. But as this infection has been said to be capable of affecting no other but women in child-bed, and therefore to be of a truly *feminine nature*, people may also be inclined to assert, that it is not influenced by such causes as are known to support other infections. In some of the cases I met with, the disease might be attributed to the sufferings of the patient during parturition, the labour being severe and protracted, and to the premature and immoderate use of stimuli, as well as to premature exposure to cold; but, in three or four of them, I was unable to account for it. There did not, however, appear the least grounds for its originating in infection; for if there had, the cases would have been far more numerous, in consequence of the great number of women delivered at the time, the *situations* in which the generality of them were placed, and our having used no precaution, until the last cases occurred, to prevent the infection being carried to those females who were recently delivered. From the 5th of March 1821, the date of the first case, to the 7th of December following, when the last case of which I have given the outlines occurred, we delivered 463 patients; from which it will appear, that not one in eleven were seized with the epidemic. It is not therefore probable that so great a proportion of our patients would have escaped the disease, had the infection been of so concentrated a nature as we have been taught to believe. On the other hand, how are we to account for patients having been seized with it, who had no medical attendant of any description when they were delivered, and sent for none until the disease manifested itself, as happened in Mr Kennedy's case, and in that of a Mrs M'Donald, residing in Liberton's Wynd? The appearance of the disease in the woman delivered by Mr Bruce, is not less extraordinary; for this gentleman never saw a case of it until he attended this patient, who resides at a distance of nearly two miles from town, and who declares that she had no communication with any one of those who were affected.

Ever since I have directed my attention to female practice, it has appeared to me that the disease styled puerperal fever, one of the most formidable to which women in child-bed are liable, has been surrounded by a greater mass of inconsistencies than any other; and that, of all the authors who have expressly treated of it, very few, at least in this country, seemed to have any just conception of its nature, or to have treated it as it ought. In submitting the following cases, therefore, as well as the preceding observations to the profession, I am merely actuated by a wish to corroborate what has been advanced by Drs Gordon, Armstrong, and Mr Hey, the only authors who had correct ideas of this disease, and have had the boldness to treat their patients according to the sentiments they entertained. I lay no claim whatever to originality, for Drs Denman and Leake entertained nearly the same sentiments, respecting the pathology of this disease, that I have now advanced, although not with sufficient perspicuity. But what we have chiefly to regret is, that neither of them unfortunately put their opinions to the test of experiment, by applying them to practice, with that boldness which we might have expected from their correct knowledge of the nature and fatality of the disease.

It will be seen, by these cases, that I have pushed the lancet further than has ever been done before on such occasions, which must stimulate the profession to employ it more fearlessly when they meet with cases of this nature, and at the same time refute an old prejudice, which gave us to understand, that women in the puerperal state could not bear bleeding so well as in other circumstances. I have always, however, been of the contrary opinion; because, from the superabundance of blood circulating in the system after parturition, as well as the greater proportion of albumen which the blood contains during gestation, women in child-bed will be able to support the loss of blood better than on any other occasion. Dr Denman, at one time, entertained the former opinion; but, in the latter editions of his unrivalled work, he changes his sentiments; and he expressly states, "that his fears were groundless, and his reasoning fallacious."

From the preceding observations, and cases immediately to be detailed, my sentiments respecting the cure of this disease must be quite obvious; but I am still very diffident in laying the results of my practice before the profession, particularly as the treatment which I pursued and found so successful has been said to be of no avail, or condemned as destructive to life, and as those authors who have furnished us with the best works on this subject have been accused of having deceived themselves. Dr William Hunter was in the habit of informing his pupils, that in whatever manner they treated such patients, three out of four would die. One professor of midwifery, in a celebrated Northern university, declared the puerperal fever incurable; and his ingenious successor concludes his observations upon it in the following words: "From the above cases, and from all that has been yet written on the subject, we may with great truth conclude, that we know little of the nature, and still less of the cure, of puerperal fever." And in speaking of blood-letting, the same eminent teacher declares, that, "by employing the lancet, we are only signing the death-warrant of the patient." The influence of these declarations, coming from persons of such high authority, must make a powerful impression on the mind of every one; and, were it not that I am supported in my opinion by the eminent characters already so often mentioned, I am convinced I should not easily be prevailed upon to publish these cases. The cases, however, will speak for themselves; but, in whatever light they may be viewed, it is a great satisfaction for me to be able to say, that they were seen by gentlemen of exalted rank in their profession, strict probity, and eminent professional acquirements, who were decidedly of opinion that they were genuine cases, and who were no less satisfied that nothing but the lancet could save such patients. Indeed I must do these gentlemen the justicé to take this public opportunity of stating, that, in two of the cases, they urged the further use of the lancet, when I thought such a step injudicious; but their advice was crowned with success. With respect to blood-letting, it is surprising that it should have fallen into disuse, although recommended by almost every physician of any reputation, from the time of Hippocrates to the present day; but it could only have been its untimely or undue use, and declarations of the above nature, with the strong cautions under which it was recommended, that has brought this invaluable remedy into disrepute. Even Denman and Leake, who were among the first to declare that puerperal fever was of a most inflammatory nature, acted in their practice almost in direct contradiction to their own sentiments; for the former recommended large bleedings, but practised small; and the latter also was contented with taking away 8 oz., and sometimes considerably less: And many others, although they recommended bleeding, advised us never to have recourse to it without dire necessity, and the most mature deliberation. Whether the puerperal fever be infectious or not, or whether the infection be in its nature similar to that which produces typhus, or one *sui generis;* this question is not to deter us from using the lancet boldly, since it is a remedy which is now found decidedly advantageous in typhus, the endemic of the West Indies, commonly called yellow fever, and in dysentery,—diseases in which bleeding would have been considered, some years back, as a murderous practice.

Case I.—Mrs N. æt. 25, a female of spare habit, but healthy constitution, fell in labour of her second child on Sunday 26th March, at 5 o'clock. At this time the uterine aperture fully equalled the size of a crown-piece, and felt quite soft and dilatable. The presentation was natural,—the vertex presenting at the right acetabulum, and the face towards the left side of the pelvis; but uterine action was so trivial, that I deemed constant attendance unnecessary. On this account I took my leave, desiring that I might be called when the pains, by their frequency and power, should indicate that the patient required more attention. I was accordingly sent for at 11 *p. m.*, when I found uterine action so powerful, and the first stag of labour so far advanced, that I considered it my duty to remai by the patient until she should be relieved,—particularly as the o uteri was so dilatable, and the passages throughout so well prepared Labour gradually advanced from this period, without any remarkable occurrence, until four in the morning, when the membran gave way, and a limited quantity of liquor amnii was discharge The head at this time had made very little progress through th brim, although the labour pains had all along been strong. Th little advance of the head was owing to its size, which, after th rupture of the membranes, was discovered to exceed the ordinary dimensions, while the pelvis did not seem to be more than usually capacious. The head, greatly elongated, was ultimately expelled at half past twelve at noon, and the body and secundines soon followed. The fœtus proved to be a male, considerably larger than the usual size. It was not convenient to have it weighed, but the large diameters of the head exceeded the usual dimensions by an inch and a quarter; and to show that it was exposed to much pressure during its descent, the parietal protuberances were completely obliterated, being levelled with the rest of the skull. The patient had ℈j. of camphor in the evening to allay after-pains and procure rest, and she continued to do well for the remainder of this and the following day; but continued talking incessantly, in defiance of every remonstrance. March 28th.—I called at noon, and found the patient labouring under severe headach, deep-seated pain in the eyes, troublesome thirst, great heat of surface, and a strong full pulse of 135, with some diminution of uterine discharge. She informed me that she experienced severe rigors at 2 in the morning, which were succeeded by the uneasy feelings just detailed, and diminution of the secretion of milk. The above symptoms were accompanied by excessive nausea, which sometimes ended in vomiting, the matter brought up having a bilious appearance. There was also pain above the pubis, but so little felt by the patient, that, if the question had not been asked her, it is probable she would not have mentioned it. When the hand, however, was applied over the abdomen, a little nearer the umbilicus than the pubis, the uterus could be felt much larger than it should be found at this period after parturition; and moderate pressure occasioned much pain. The tongue was clean and moist, but the bowels were torpid, attended with some pain in voiding the urine. The patient had a wild eye, and her countenance was equally unsettled. It was remarked that she made no inquiry after her child. Under circumstances like these, the practice was quite obvious; and I accordingly proposed immediate venesection, which was obstinately resisted by the patient, but under a promise to submit to it in the evening, unless relief were obtained by other remedies. In the mean time she had sub. mur. hyd. gr. iv. et ox. antim. c. phos. calc. gr. vi. made into a bolus with conserv. rosæ, and in an hour afterwards ℥j. of sulph. magnes. I likewise ordered warm fomentations to the abdomen, and occasionally small quantities of warm gruel to promote the action of the bolus. In the evening, at 6, I visited her, accompanied by Dr Murphy; we then found the pulse at 140, and more contracted than at the fore part of the day. The cathartic medicines had produced several evacuations; the skin was somewhat moist; the lochia more copious; but there was no remission of the abdominal pain, which, instead of being confined to the uterus, as at the former visit, was now more diffused over the abdomen. She now submitted to be bled; and 25 oz. were taken from the arm, which induced syncope, and procured much relief. Thursday, 29th, continued better in every respect; had slept well during the night; had very little uneasiness in the abdomen; lochia continued; but breasts were flaccid; pulse about 130. Diarrhœa followed the exhibition of the cathartic. Hora somni tinct. hyoscyami ʒij. cum aq. menth. pp. ℥j. habeat. Friday, 30th, 10 *a. m.*, appeared dejected; pulse 145, and thready; tongue clean and moist, with its margins of a fiery red colour. When she attempted to sleep, her eyes remained half open; diarrhœa and the uterine discharge continued; abdominal pain was increased; the abdomen felt tumid, but not distended; and when the umbilicus was pressed upon, the patient started up in bed from excruciating pain. At this time my friend Mr Lizars saw the patient, and was of opinion that the lancet should again be used, which was done accordingly, and 18 oz. of blood abstracted with manifest relief. From the diarrhœa still continuing, she was now ordered some chalk julep. At 1 *p. m.* the abdominal pain recurred; 12 oz. more were detracted; the warm fomentations were continued; and a dose of the tinct. hyoscyam. exhibited at bed-time, with ℥ss. aq. acet. ammon. every half-hour while awake, with a view to promote diaphoresis. 31st, I was called at 2 *a. m.* to attend another patient, whose labour was not concluded until 6, prior to which time I had again been sent for to Mrs N., from her becoming much worse; but the messenger finding me from home, called Mr Lizars, who, in consequence of the patient's aggravated sufferings, took away 18 oz. more blood, with some alleviation of pain. Patient was very restless during the night, suffered greatly from nausea, and vomited twice something of a coffee-coloured substance; so that, from the very irritable condition of the stomach, she was unable to take the aq. ant. amen. oftener than twice. The tongue was still clean; the diarrhœa had been checked by the chalk julep, conjoined with aromatic confection; but the lochia continued. The abdomen was now nearly as large as it was previous to delivery, presenting a sugar-loaf appearance, and was not at all tense, but conveyed a feeling to the hand as if it contained air. At 11 *a. m.* I visited the patient, accompanied by Mr Lizars and Dr Murphy, who were of opinion that any further detraction of blood would be injudicious, although her sufferings were still excruciating. It was now resolved to apply sinapisms to the abdomen; and she supported the application of the sinapism for several hours, and thought herself relieved after it. In consequence of the abdominal pains having returned in a few hours afterwards, another sinapism was applied, but without any benefit. She was now ordered camphorated julep every second hour, with a view to sooth her sufferings, and support the vital powers. She vomited coffee-coloured matter frequently during the night, and sometimes talked incoherently. April 7th, She was seized at 3 *a. m.* with tremors, followed, at 4, by cessation of pain, with coldness of the lower extremities, and clammy perspiration over the whole surface. She expressed an earnest desire to see me; and I was accordingly called at 6, when I ordered small portions of brandy to be given occasionally. I saw her again at 8.30 *a. m.*, at which time she was quite sensible; but the pulsation at the wrist had ceased, from which it was but too evident that death was near at hand. She accordingly sunk at 11 *a. m.*

Dissection.—On dividing the abdominal integuments, we were led to remark their extreme thinness, partly from having been stretched during gestation, and partly afterwards by the intestines in a state of distension. The recti muscles were at least three inches apart, remarkably thin, and greatly expanded. The epigastric artery was carried outwards on each side by the rectus muscle. * On exposing the peritoneum, this membrane appeared unusually supplied with blood-vessels, and had contracted adhesions to the intestines. When the peritoneum was reflected, a white arborescent appearance was beautifully displayed on its intestinal surface, which, when further examined, was found to be the abdominal nerves greatly enlarged,—a circumstance never before noticed in such cases. When the abdominal viscera were brought into view, we had additional proofs of the propriety of our method of treatment; for the omentum, mesentery, and all the intestines, exhibited the most indubitable proofs of violent inflammation. The rectum, bladder, uterus and vagina, were also affected with inflammation to a great extent. The body of the uterus appeared red in many points, as if a minute injection had been thrown into its vessels. The uterine ligaments and tubes were inflamed, but the ovaries appeared unaffected; and in the left ovarium, the *corpus luteum* was quite conspicuous. There was no gangrene to be observed, this having been prevented by the freedom with which the lancet had been used. The escape of fœtid gas from the abdominal cavity, as remarked by Hulme, was not observed in this case; and it appears to me that such an occurrence will not be met with except in cases attended with gangrene. The intestines, however, both great and small, were unusually distended with air; and to this the great size of the abdomen was to be attributed. The intestines were glued together by coagulable lymph, and there was effusion into the cavity of the abdomen, though inconsiderable—not amounting in the whole to above 8 oz.; it had more the appearance of purulent matter than serum.

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* In consequence of this separation of the recti muscles, and the course observed by the epigastric arteries, a longitudinal incision may be made in performing the Cæsarean section, to either side of the *linea alba*, with perfect safety to these vessels. I think it will be much better, indeed, to make the incision to one side or other of the umbilicus, than in the linea alba, where some have directed it. For, by making it in the linea alba, it is clear that we must separate the abdominal muscles at their central attachment, and, by so doing, greatly diminish that support which they afford to the abdominal viscera. But whether we are to be influenced by this last consideration or not, in making our incision, it is certainly of consequence to be aware of the change in the situation of the epigastric arteries, if it were merely with a view to their safety.

In all our dissections, I observed that the fallopian tube, corresponding to the ovary displaying the appearance of a corpus luteum, was not only more vascular, but also much more capacious than the opposite one. And in the case of a woman who died from spasms soon after bearing twins, there was a corpus luteum in each ovary; and the increased capacity of each fallopian tube was sufficiently obvious, which are facts worthy the attention of those who are engaged in pursuits relative to medical jurisprudence, and hitherto unnoticed by writers.

CASE II.—Was a stout healthy married woman, of 37 years of age, who was delivered by Dr Patrick Murphy, of her seventh child, in the afternoon of the 2d of April, after having been sixteen hours in severe labour. Dr M. did not see her for twenty-four hours after her delivery; she having been visited, in the mean time, by another of my pupils. When Dr M. called, he found her labouring under the same symptoms remarked in Mrs N.'s case, whose dissection he witnessed but a day or two before. He very justly concluded that it was the same complaint, and immediately bled her to the extent of 26 oz., which produced syncope. He then ordered ℥jss. sulph. magnes. to be taken as a cathartic, and warm fomentations to be applied to the abdomen. At 4 *p. m.* of the same day, I saw this patient along with Dr Murphy; and as her pulse was again so high as 150, with much uneasiness of the abdomen, 20 oz. more blood were taken from the vein formerly opened. The mammæ were flaccid, and uterine discharge diminished, but not suppressed. She was at this time prescribed the following powder, in order to excite the cutaneous discharge, and promote the action of the intestines. ℞ Sub. mur. hyd. gr. iij. Pulv. antim. c. phos. calc. gr. vj. M. This powder was directed to be repeated if necessary, and the warm fomentations continued. April 4th.—She was greatly better; her tongue, from having been dry and covered with a dark brown fur, was now clean and moist; her thirst less; skin moist; pulse 120, but soft; the lochia more copious; and the patient expressed herself quite relieved. She had no other remedy than an occasional diaphoretic and purgative, and had a perfect recovery in a few days.

CASE III.—A healthy married female, of 25 years of age, was delivered of her second child on the 3d of April, by Mr Young, one of my pupils, after a very easy natural labour. She was seized in twelve hours afterwards with severe rigors, followed by pain in the hypogastric region, which darted towards the loins and ilia, and was rendered very acute by pressure. She was bled to the amount of 32 oz. at 4 *p. m.*, being two hours after the accession of rigors. At this time also she took a dose of the sulphate of magnesia, and had a perfect recovery, without any further treatment.

CASE IV.—A very nervous married female, aged 32, was delivered by myself of her fifth child, a male, at 5 *a. m.* on the 5th of April, after a very easy, natural labour. She continued well until three the following morning, when she was seized with severe rigors, and other concomitant symptoms. I did not see her until six in the evening; but she had been prescribed a dose of ol. ricini and warm fomentations by a female attendant. When I saw her, she had a strong full pulse of 145; she was lying upon her back, quite listless, and indifferent about her infant and other surrounding objects; she had severe nausea, but no vomiting; and complained much of difficult respiration. The abdomen, generally, was painful, particularly upon pressure; the uterine discharge was diminished, but not suppressed; and there was difficulty in voiding the urine. In this, as in all the other cases, there was pain over the forehead and in the eyes, and there was also much depression of spirits: in fact, the symptoms altogether predicted a disease of the most formidable nature. I immediately tied up the arm, and abstracted from a large orifice, in a full stream, 32 oz. of blood by weight, which induced a tendency to syncope, and diminished greatly the abdominal pain. I directed the warm fomentations to be continued, the following powder to be taken immediately, and to be repeated in course of the evening, if necessary. ℞ Pulv. antim. gr. iij. sub. mur. hyd. gr. ij. M. I saw the patient again at 9 *p. m.*, and, from the state of the abdomen, and condition of the pulse, I took away 18 oz. more blood. The powder not having operated, she was ordered ℥j. sulph. magnes. and a cathartic enema at midnight, should the bowels still continue to resist the medicines previously administered. April 6th.—In consequence of the state of the pulse and abdomen, 12 oz. more blood were detracted; and at six in the evening other 18 oz. 7th.—Patient felt much better in every respect. 8th.—Patient talked greatly during her sleep, vomited twice coffee-coloured matter, but upon the whole continued free from pain. 9th.—Continued nearly as the day before. ℞ Sulph. magnes. ad ℥j. statim. 10th.—Could not void her urine this morning without the catheter; pulse 132, and full; lochia continuing; abdomen free from pain. 6 *p. m.* Pulse as in the morning; complained of acute pain in the abdomen, particularly about two inches above the pelvis, and in both iliac regions. V. S. B. statim ad ℥xxiv.; ordered to have twenty-four leeches applied to the pained parts. 9 *p. m.* V. S. B. ad ℥ix. Repet. An emollient cataplasm to be applied over the bites of the leeches, to promote bleeding. From this time the patient began to recover; and she was quite well on the 18th. Mr Lizars, Dr Moore, Dr Murphy, and Mr Harland, all saw this patient. Ten days after her recovery from this complaint, she had a severe attack of *phlegmasia dolens*, of which she also recovered; and in six weeks after, notwithstanding all her sufferings, she was able to nurse her own child.

Case V.—A stout healthy young married female, of 22 years of age, was delivered by myself of her second child, a male, after a very easy labour, on the 7th of April. On the 8th, she was visited by a female friend, to whom she mentioned that she was much troubled with after-pains; and she was advised to take four large wine-glassfuls of undiluted spirits to relieve them. In less than two hours after, she was seized with rigors of unusual severity, which were soon followed by symptoms not less severe, similar to those described in the other cases. I was called at 10 *p. m.*, and bled her to the amount of 18 oz., which induced complete syncope, and greatly relieved her uneasy feelings. I then ordered two small doses of sub. mur. hyd., and ox. antim. c. phos. calc. as in the former cases, and warm fomentations to be applied to the abdomen. 9th, 9.30 *a. m.*, felt scarcely any pain; pulse 76; skin moist and temperate; lochia copious. 10th, Continued as the day before. 10 *p. m.*, was again called in a great hurry, in consequence of all her symptoms having returned with redoubled violence; which relapse was ascribed to her having been much agitated by her eldest child falling down stairs. I found her in great agony, unable to turn to either side in bed, with all the other symptoms equally as severe as in any of the former cases: the lochia continued, but the mammæ were flaccid. At this visit I took away about 30 oz. of blood, which produced complete syncope; after this she was ordered to take 10 drops of the tinct. digit. purp. every hour and a half. April 11th, 6 *a. m.*, had still much pain of abdomen, with considerable tumefaction; took the digitalis five times in the course of the night, without producing any effect on the pulse, which this morning beat from 140 to 145. At this visit I abstracted 18 oz. of blood, producing syncope in the recumbent posture; during which, the patient vomited large quantities of coffee-coloured matter. At 1 *p. m.*, the abdominal pain and velocity of the pulse continued, accompanied with hurried and oppressed respiration; I therefore detracted 24 oz. more blood. At 8 *p. m.*, the pulse, if any thing, slower; tongue much cleaner; abdomen easier, and less tumid. Digitalis to be discontinued. April 12th, 10 *a. m.*, Continued nearly as yesterday; vomited much coffee-coloured matter during the night. Enema commune statim, et haust. efferves. ad ℥j. quaque secunda hora habeat. 2 *p. m.*, Ever since the exhibition of the enema, and two doses of the effervescent mixture, she vomited immense quantities of coffee-coloured matter, which was brought up almost without an effort. 8 *p. m.*, Patient was scarcely able to speak; vomiting had ceased; pulse not very distinct at the wrist; the extremities were becoming cold, which, with the appearance of the countenance, indicated approaching dissolution. She continued sensible to the last, and expired at 11 *p. m.*, apparently without much suffering.

Dissection.—When the body was exposed, we observed *vibices* on the lower extremities. On dividing the abdominal integuments, there did not appear to be much loss of substance, for they were by no means so thin as in Mrs N.'s case, nor was the abdominal swelling so considerable. When the peritoneum was divided and reflected, it had not, as in Mrs N.'s case, contracted any adhesion with the viscera underneath; and its vascularity, although somewhat preternatural, was not, however, very remarkable. Its nerves were greatly increased in size, as in Mrs N.'s case. The vascularity of the mesentery was somewhat increased, but not to any great extent. The uterus and its appendages were the parts which suffered most; and here there were sufficient evidences of injury. The peritoneal coat of the uterus was greatly inflamed; and the broad and round ligaments still more so. The ovaries were enlarged to the size of a hen's egg, and the left ovary in a state of suppuration and ulceration; and both, when laid open, were found to contain sacs of purulent matter. There was effusion of serum into the cavity of the abdomen, but not to any extent; and it did not resemble pus so much as that found in the former case; it had more of a serous appearance, and contained curdy matter. The intestines did not cohere; nor were they interlined with coagulable lymph, as in the other case. The omentum, but particularly its inferior margin, was much inflamed, and its fat throughout greatly consumed. The stomach and intestines were much distended with flatus. Dr Moir, Dr Murphy, and Mr Maxwell, witnessed this dissection.

Case VI.—A married woman of 38 years of age, of a spare habit and delicate constitution, was delivered on the 8th of April of her fifth child, a stout male, by Dr Patrick Murphy. Her labour was tedious, in consequence of an exostosis placed upon the left os pubis, a little lower than the brim of the pelvis. When the child was born, there was an indentation observed on the left side of the frontal bone, sufficiently deep to lodge two fingers; and the mother said, that a similar depression was seen on the head of her former child, when she also had a very severe labour. The patient continued as well as could be wished until the 14th, when she was seized with severe rigors, and other symptoms, as detailed in the former cases. The lochia ceased soon after the accession of the rigors, and the secretion of milk was also much diminished. I called upon her by mere accident four hours after the rigors; her pulse was then at 140, accompanied with much languor, headach, a sensation of soreness over the abdomen, which was rendered more acute by pressure; and the abdomen itself felt tumid. She was lying upon her back, incapable of turning to either side, and appeared quite indifferent about her child, a symptom observed in most of the other cases. In this condition, I resolved on bleeding her immediately, but found that I had forgot to bring my lancets. I instantly repaired to Dr Murphy, who lived very near the patient, and I begged of him to take charge of her, and stagger the disease at once with a copious bleeding. In half an hour after I left him, he saw the patient, and was so well convinced of the necessity of attending to my directions, that he abstracted 30 oz. of blood at once, which occasioned complete syncope, and effectually subdued the disease. This patient had no further treatment except warm fomentations, together with an occasional purgative, and sometimes also an anodyne; and she was so far recovered on the 20th, that we gave up visiting her.

Case VII.—A very nervous young married female, of spare habit and delicate constitution, aged 22, was delivered by one of my pupils of her first child, a male, on the 19th of April. Her labour lasted 22 hours, and was perfectly natural. The head and abdomen continued uneasy from the time of parturition; the milk appeared at the usual period; the lochia continued uninterrupted; and the pulse did not indicate any increased vascular action until the 25th, six days after delivery, when it was discovered to be at 126, strong, and incompressible; the pain of abdomen was rendered very acute by pressure; and the head was becoming gradually more uneasy. Under these circumstances, my friend Mr Lizars saw her in the morning, and directed her to be bled, which was done accordingly, and 18 oz. abstracted from the arm, which produced complete syncope, and greatly diminished the pain of head and abdomen. At 3 *p. m.*, when on my way to lecture, I met the gentleman who delivered her coming for me, to request that I should visit this patient for the first time. From the previous history of her indisposition just detailed, as well as the symptoms under which she laboured at this time, not a doubt remained in my mind as to the nature of her complaint. I inquired if she had rigors, as this was observed in all the other cases; and was answered that she had shiverings at 2 *a. m.*, but that they were not very severe. When I saw her at this time, she was lying upon her back, unable, from the severity of the pain, to turn to either side; she complained of much pain in the abdomen, which was aggravated on taking a full inspiration, or in coughing; the mammæ were flaccid, but the uterine discharge continued; the pulse was 140, hard, and incompressible. She was again bled to 14 oz.; warm fomentations were applied to the abdomen; and a small dose of the sub. mur. hyd. and ox. antim. c. phos. calc. directed to be taken, and repeated at the end of three hours. 6 *p. m.*, Abdominal pains, with other symptoms, as formerly; V. S. B. ad ℥xiii. Rept.; twenty-four leeches to be applied to the abdomen. 9 *p. m.*, Pulse 116, but still hard and incompressible; a warm emollient cataplasm to be applied to the abdomen to promote the bleeding from the wounds of the leeches; bleeding from the arm to be repeated during the night, if necessary. April 26th, The medical attendant was so intimidated by the patient and her relatives, that bleeding, although loudly called for in the night-time, was not practised; 15 oz. more blood were, however, taken from the arm this morning; the leeches reapplied; and, after they had dropped off, the warm fomentations were continued. After this bleeding, she was seized with severe spasms and hysterical screamings, to which she had been liable on former occasions; but after she recovered from that state, she felt the abdomen much easier. 3 *p. m.*, The abdominal pain having returned, accompanied with a firm steady pulse of 145, 7 oz. more blood were taken away, which occasioned syncope and spasms as formerly. 6 *p. m.*, Abdominal pain returned, but pulse too much sunk to support further bleeding; warm fomentations continued. 9 *p. m.*, Pulse 145, firm and incompressible; abdominal pain severe; 10 oz. more blood were abstracted; a laxative enema administered; and a mustard cataplasm applied to the abdomen. April 27th, The application of the cataplasm was supported for several hours during the night; abdominal pain much diminished; the pulse becoming firmer at 1 *a. m.*; bleeding was repeated to 7 oz.; patient slept for several hours during the night.

3 *p. m.*, Pulse 120, somewhat firm and equable; abdomen could be freely pressed without occasioning pain. 6 *p. m.*, Continued nearly as in the forenoon; urine drawn off by the catheter in consequence of retention. Enema commune statim. April 28th, 10 *a. m.*, the velocity and firmness of the pulse having returned with abdominal pain, venesection was repeated to 7 oz.; and at mid-day, twelve ounces more were detracted with decided benefit: at 4 *p. m.*, the abdominal pain, with quick firm pulse, again returned; and seven ounces more blood were taken, which completely relieved the patient's uneasy feelings; for she fell asleep soon after, and rested well during the whole of the night. April 29th, felt better in every respect; abdomen could be freely pressed without occasioning pain; patient had succeeded in turning round on her knees in bed to make water, an effort which she had not been capable of since her delivery. Enema commune statim. April 30th, skin temperate; pulse 116, soft and equable; bowels regular; Haust. anod. h. s. habeat. May 2d, slept well during the night, and continued in every respect as on the 30th. 3 *p. m.*, The patient was suddenly seized with spasms of the stomach returning at intervals, and succeeded by constant and severe abdominal pains; at 5, the surface was covered with a clammy sweat; the extremities became cold, and the patient delirious; and she expired at half past 10. Mr Lizars, Dr Murphy, and Mr Maxwell, saw this patient repeatedly during her indisposition. Dissection could not be obtained.

Case VIII.—A stout healthy married female, of 33 years of age, among the better ranks, whom I delivered on the 20th of April of her seventh child, a male, after an easy labour. I was merely called to attend this patient in her labour, in consequence of the gentleman who should have been with her having been at another case at the time, and next day I left her under his care. On the 23d, at midnight, she was seized with rigors, followed by such other symptoms as I have detailed in the former cases, and she was bled to the amount of 19 oz., and took a saline purgative. April 24th, 4 *a. m.*, bleeding was repeated to 12 oz. 25th, Patient felt quite easy. Sulph. magnes. ad ℥j. Repet. This patient was so well on the 30th, that her practitioner gave up visiting her.

Case IX.—A stout healthy married woman, of 33 years of age, was delivered, in the forenoon, on the 22d of May, of her fifth child, a male, by Mr James Murray, one of my pupils; but, from his becoming indisposed soon after, she was put under the care of another of my pupils, Mr Julius Casement, A. B. In twelve hours after her delivery, she was seized with rigors, followed by abdominal pains, with which, however, I was not made acquainted until the following morning at 10, at which time she lost 26 oz. of blood; afterwards took a saline purgative, and warm fomentations were directed to be applied to the abdomen. At 3 *p. m.*, 9 oz. more blood were detracted by Mr C.; and, at 8 *p. m.*, 8 oz. more by myself. At 11 *p. m.*, pain still continuing, 12 oz. more were taken away. May 24th.—

Continued almost without pain; belly regular; pulse 125, and soft; warm fomentations to be continued. 25th, Complained of severe pain in the left iliac region; 12 leeches to be applied to the pained part, and a cathartic enema exhibited. 26th, Pain more diffused over the abdomen, and of greater severity than yesterday. V. S. B. statim ad ℥xvj.; enema catharticum postea. From this time, the patient continued free from pain. On the 2d of June, she was restored to her usual health, and began to nurse her own child.

Case X.—A stout healthy young female, of 29 years of age, delivered by a midwife on the 31st of May of her fourth child, a male, after an easy labour. She continued to do well until the 3d day, when she was seized with severe rigors at noon. I was asked to see her at 2 *p. m.*, being then visiting another patient, delivered the day before, in the same stair. She was immediately bled to 28 oz.; she was ordered a saline purgative, and warm fomentations to be applied to the abdomen; and, except an occasional cathartic, no further treatment was required. On the 10th of June, she was restored to her usual health.

Case XI.—A healthy young married female, wife of a private of the 41st regiment of foot, was delivered, on the 16th July, by Dr M'Cormick (one of my assistants), of her first child, a female. The labour was severe and tedious, and lasted altogether 20 hours. She lost 34 oz. of blood during her labour, in consequence of the uterine dilatation being tardy, and the external parts extremely unyielding. During her delivery, she frequently called for wine or spirits, which were at that time prohibited. The night after her delivery, as well as the following day, we discovered that she was freely indulged in spirits by some of the attendants. On July the 18th, at 8 *a. m.*, she was seized with severe rigors, with other symptoms which, in point of severity, equalled any of the foregoing cases; with this difference, however, that the abdomen felt much harder than in any of those already detailed. I saw her at 10 with Dr M'Cormick, and we bled her to the amount of 17 oz., which induced complete syncope, and relieved her uneasy feelings very much; warm fomentations were applied to the abdomen, and she took a saline cathartic. At 3.30 *p. m.*, abdominal pain, with velocity and hardness of pulse, had increased since last visit. V. S. B. ad ℥x. rept. At 9, bleeding repeated to 12 oz. July 19th, 3 *a. m.*, vomited coffee-coloured matter frequently during the night; bleeding repeated to 9 oz. by Dr Edward Kelly, another of my assistants. 9.30, *a. m.*, pulse very frequent, and intermitting; pain of abdomen still excruciating; surface covered with a clammy sweat; she vomited every thing; countenance had a deathlike appearance; she continued sensible to the last, and expired at noon. Dissection could not be obtained.

Cases XII. XIII. & XIV.—In the first case, 32 ounces of blood were taken away; in the second, 46 ounces were detracted at two different bleedings; and in Case XIV., 37 ounces were taken away at two bleedings, and the patients recovered.

Case XV. occurred on the 16th of September, four days after parturition, the patient a stout, healthy, young married woman, having been delivered by Mr Bruce of her first child, a large male infant. During labour, the perinæum was lacerated to a considerable extent, in consequence of her bearing down with great violence when the head was on the eve of being expelled. My friend Mr Lizars and myself were visiting another patient in her neighbourhood, and called in by mere chance. She informed us that she had severe rigors at noon; and the case, altogether, proved to be one of the most genuine I had yet witnessed. She was bled instantly to the amount of 28 oz., took a saline cathartic, and had warm fomentations applied to the abdomen. She had no further treatment, except an occasional laxative, and was so far recovered on the 23d as to be able to leave her bed.

From the date of the last case, until I was called by my friend Mr Kennedy, the disease disappeared in our practice. At that period, the cold rainy weather set in, and with it the disease returned. It was now more frequent and fatal than formerly; for, in less than two months, we had no fewer than twenty-six cases, out of which number we lost eight. In these last cases, besides the free use of the lancet and purgatives, we also had recourse to the application of 50 or 60 leeches to the abdomen, * the enema domesticum frequently thrown into the rectum, and injections of warm water into the vagina, with decided advantage. The practice of throwing warm water into the vagina has been pursued, for a considerable period, by the French, as may be seen by consulting M. Maygrier; so that no one in this country can claim to himself the merit of having first recommended it. In one case, where diarrhœa with much griping supervened, 20 drops of the sedative solution of opium were thrown into the rectum, and a similar quantity, some time after, for the same reason, into the vagina, and the patient's uneasy feelings almost immediately subsided. The same remedy, administered by the mouth, to the amount of 10 or 15 drops, had a similar effect; it also occasioned general perspiration, diminished the thirst and frequency of pulse; and its exhibition was not followed by torpor of the bowels, as results from the use of opium or laudanum. This last remedy was suggested by my friend Dr M'Intosh, who, with Dr Orr, very kindly offered to superintend the proceedings of my assist-

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* In two of these last cases, each of the patients had 150 leeches applied to the abdomen, and in one of them with success;—the other died, because she was so much afraid of the lancet and leeches, that she denied having any pain in the abdomen, so that these remedies were not carried to the extent they ought.

ants, Messrs Black, Kinmouth and Davis, and relieve me entirely from the duty, in order to prevent the public supposing that I conveyed infection from one patient to another. It is not for me to say much of the talents and zeal displayed by these two gentlemen in directing the conduct of my assistants, who also evinced much anxiety in the execution of their duty. The result of their labours will say more for them than I can; and I shall leave the rest to the gentlemen who acted under them, and to those towards whose recovery they very effectually contributed. To my assistants, they afforded an example of perseverance and patience which will be a useful lesson to them in their future professional career; and their humanity and diligence have been such as to make a lasting impression on those whom they laboured so arduously to relieve.

In examining the bodies of the last fatal cases, similar appearances were observed to those mentioned in the dissections already particularized. In one case, the ovaries were much enlarged, and contained sacs of purulent matter, as in one of the dissections already detailed. This was the only instance where we examined the cavity of the thorax, which was found to contain from 10 to 12 oz. of bloody serum; but the viscera had a healthy aspect. In another dissection, witnessed by Dr Duncan junior, Professor of Materia Medica, Mr James Bryce, surgeon, Mr Lizars, and Dr Orr, the intestines were glued together by coagulable lymph; and these gentlemen were pleased to declare themselves perfectly satisfied as to the nature of the disease, and equally so with the method of treatment adopted.

In conclusion, I shall briefly relate the steps pursued for the recovery of our last patient, in order to afford the profession an idea of the activity of our practice. On Thursday the 6th of December, I went with Mr Morris, one of my pupils, to attend a young married female, named Ormond, of a full plethoric habit, aged 23 years, living in Foulis's Close, opposite the Cross, whom we delivered that same afternoon, at half past three, of her first child, a male, after an easy labour. She continued well until the Sunday following, at 1 *p. m.*, when she was seized with severe rigors, headach, and abdominal pain. They sent immediately to acquaint me with the state she was in; and Dr M'Intosh, Mr Davis, and myself, repaired as soon as possible to her assistance. We found her in a state which left no doubt as to the nature of her indisposition, and bled her instantly to the amount of 36 oz.; warm fomentations were then applied to the abdomen; she had some doses of calomel and antimonial powder repeated at intervals; and the enema domesticum was thrown into the rectum every second hour. In the evening she was visited at eight, when Mr M'Donald of the Royal Infirmary saw her, who likewise favoured us with his advice in some of the other cases; the abdominal pain continued, 36 oz. more blood were detracted; the cathartic powders continued; also the enemas and warm fomentations as formerly. The ensuing day, the abdominal uneasiness still continued; 60 leeches were applied to it, which bled profusely. In the evening at 9, my friend Mr Lizars accompanied Dr M'Intosh; and, as the abdominal pain had not altogether subsided, it was thought expedient to detract 26 oz. more blood. From this time the patient continued well; and she was so far recovered on the following Sunday—a week after the attack—that she was able to leave her bed. On Thursday the 20th, being the 14th day after her delivery, she was again seized early in the morning with severe rigors, and abdominal pains, which were a second time subdued by a bleeding of 32 oz. and some cathartic medicines. December 24th, she left her bed, and in two days more felt herself able to attend to her usual occupation. After recovering from the second attack, this patient was observed to labour under slight mental aberration, from which she soon recovered. The same thing happened in three other cases, and one of them still continues to labour under it.

2, North St David Street,
December 28th, 1821.

VI.

Case of General Dropsy, in which copious Blood-letting was employed with Success. By Robert Graham, M.D., Fellow of the Royal College of Physicians, Professor of Botany in the University of Edinburgh, and one of the Physicians to the Royal Dispensary.

Every practitioner, I believe, will acknowledge, that different individuals, when labouring under the same disease, bear and require the same treatment, carried to different lengths. Every practitioner knows, that half of an aloetic pill often purges smartly; and I have repeatedly, in peculiar circumstances, given three dozen of such pills daily before the bowels could be moved. The loss of six ounces of blood sometimes produces all the effects of full depletion; and six-and-thirty ounces are sometimes drawn with little effect. Large and small, therefore, are merely relative terms; they never can be understood to denote absolute quantities. These positions, in the abstract, are admitted by every body. But is it not true, that we often lose heart in bringing them into practice? Within what we are pleased to call reasonable bounds, every body acts upon them; and we are surely right not to go beyond reason; but the point is, to ascertain how far this will carry us. The common rule is, to be guided by the effect produced on the average of mankind; and when we reach to, or venture a little beyond, this point, though our patient may still be exactly as we found him in regard of every symptom, we rarely go much farther; we more frequently conclude that our treatment is inapplicable to the case, and change it for some other.

Now I contend, that this is converting what we are all ready to allow are mere relative terms, into expressions of absolute quantities,—it is abandoning to his fate an unhappy patient, who may have a very unusually inflexible constitution, or a very uncommonly obstinate form of disease. We do not cure disease by the mere exhibition of medicine; it is, in general, by inducing certain *sensible* effects that we do any good. It is not by swallowing salts that inflammatory action is reduced; it is by discharging watery stools; and, whatever be the quantity of the drug taken, if purging be not induced, the patient has not fairly tried the remedy.

The general rule for our conduct, therefore, ought to be derived from the sensible effect of our practice; and every dose of medicine, however large, is too small,—every quantity of blood drawn, however great, is too little,—if it stops short of the usual sensible effect. Of course, I am to be understood to mean the effect upon the constitution, not upon the disease. If we produce upon the constitution the effect we have reason to look for, and the disease remains as before, then we have indeed fairly tried the prescription, and have sufficient reason to conclude that our treatment is inapplicable. If we direct purgatives, and succeed in opening the bowels freely, without relieving the disease, then we have reason to think that cathartics are not suited to the case. If we employ blood-letting in a patient with a full hard pulse, however large the quantity may be that we take away, we do not try the remedy if we stop before we have produced its usual sensible effects,—before we have brought down the fulness and strength of the pulse; but if we have done this, and the disease continues unabated, then we are justified in changing the treatment.

This is clearly the only good general rule; but general rules always have exceptions, and never more frequently than in medicine. If a physician is an automaton, acting always upon fixed principles, and never upon the *specialties* of the case, his patients are in a very lamentable plight. In certain *idiosyncrasis*, certain remedies have not the usual effects on the constitution; and in certain states of disease, this irregularity is particularly observable; but the remark applies much more frequently to internal remedies than to blood-letting. In every case, the ultimate effect of blood-letting is to diminish the strength of the circulation, though, in the first place, it very often raises it. The exhibition of this remedy is farther simplified, by its sensible effects being always immediate. When we have decided upon blood-letting with a hard bounding pulse, we may open a vein, and allow the stream to flow till the circulation is moderated. Were internal remedies as immediate in their operation, we ought to desire our patients to continue swallowing till the usual sensible effects appeared; but as that is not the case, we must give what we *a priori* consider a proper dose, and be regulated in its repetition by waiting for the result.

I had been impressing these doctrines in my Clinical Lectures last spring, when ROBERT NORRIS came into the Infirmary, and proved their truth much more effectually than all the logic which I could compass. He was admitted on the 26th March; was a robust Irish labourer, aged 21, swelled from head to foot with anasarca, and having obscure fluctuation in the abdomen, little appetite, and considerable thirst; but said that he felt otherwise well, having no internal uneasiness; bowels open from medicine; urine very scanty; pulse 66, small, soft, and regular. Several days before, he had had uneasiness at stomach, with urgent thirst, and bitter vomiting. Three days previous to his admission, he had been obliged to leave work in consequence of severe rigors, with a sense of heat and weight at the epigastrium; then the vomiting ceased, and the œdema began. He had taken some purgatives, but no other remedy.

I saw him for the first time the day after he came into the hospital, and found the symptoms exactly as described, only that the pulse was remarkably full and firm. This was exactly a subject for inflammatory dropsy, especially as we learned that he had usually been very much overheated in digging, and as often much chilled on going home from his work; but the symptoms of fever being very inconsiderable, I wished at first to trust to purgatives, and to employ the warm bath, partly to relax the system, and partly to restore the discharge through the skin, which I thought was probably impeded. The bowels were but moderately opened, though gamboge, aloes, and calomel were employed. Perspiration was induced, but the disease increased. Calomel and squill, and then digitalis, were given; but the swelling constantly increased, the thirst becoming much more urgent, with loaded tongue, and considerable anxiety. The pulse was generally about 60, two or three beats more, or several less, always remarkably large and firm, but sometimes moderately soft. On the 28th, in consequence of the increased febrile irritation, I directed blood-letting. Twenty ounces were taken; and the report sent to me in the evening was, that it had produced no change whatever on the pulse, but he felt easier. I found every thing as before at next visit (29th), and ordered bleeding again, the quantity to be regulated by its effect. The same quantity was taken, and the same report made at night. I was very sorry I had not been present, when I should certainly have taken more. Blood natural.

On the 30th, he felt considerably easier. On the 31st, the tongue was very white; much thirst; pulse 54, remarkably full and firm. I again ordered bleeding, and desired that it should be continued till the pulse was reduced in strength. Thirty-two ounces were taken; and the report made to me was, that the pulse rose in frequency, and became more soft. The crassamentum had a gelatinous coat, especially on the first cup, which was contracted on its surface.

At the visit on the first of April, the pulse was 80, soft, or rather not harsh; but it was still remarkably full and firm, and was far from having that freedom from tension which I had been anxious to produce by the bleeding. I was very well convinced, that the sensible effect produced by the bleeding had been too inconsiderable to be attended with any material benefit; but I did not immediately repeat it, because I not only believe that it is necessary to take away a much larger quantity of blood in the cure of any disease curable by venesection, if done by many small bleedings, instead of a few liberal evacuations, but I believe that the frequent repetition of ineffectual bleedings renders the patient unable to bear the abstraction of a quantity capable of doing good. There are, I am sure, states of debility which are quite consistent with the presence of active inflammation, yet which will not admit of the treatment by blood-letting necessary for the cure of that inflammation; and these states of debility, I believe, are often the consequence of what is most erroneously called *cautious* bleeding, namely, that frequent abstraction of small quantities of blood which is the child of timidity and indecision, not the result of proper caution.

For several days, therefore, the lancet was laid aside, and the œdema went on increasing, attended with some dyspnœa, especially when lying on the back or left side. In the night of the second, and again of the third, he had a severe asthmatic fit. The pulse was usually 68, remarkably large and firm, though somewhat variable.

I am not aware that ever I saw a more aggravated case of anasarca than this young man now presented; at the same time we had ascites, and symptoms of hydrothorax began to show themselves. He was distended like a sack; his weight and bulk preventing motion; his eyes sunk and small; his appetite quite gone; his nights restless. It was evident that the treatment had done him no good; and I became very much alarmed for the result. I had no hopes of doing good with the purgatives or diuretics; these seemed to me to have been fairly tried in vain; and, on the 4th, I resolved to carry the bleeding farther. Unfortunately I was obliged to leave the Infirmary immediately after the visit; but I urged the importance of continuing the evacuation till the pulse was affected. My directions were obeyed to my heart's content. Seventy-two ounces were immediately taken, the first eighteen flowing in a moderately free, the remainder in a very full stream, the pulse continually rising in firmness, and only becoming softer at the very last; there was no tendency to syncope. The patient himself assured me, before all the pupils next day, that there was no alteration in his feelings till he had lost 60 ounces, but that, after this, he felt much more happy; in fact, I understood from the attendants, he became quite merry and jocular; and he begged, that if I wished to bleed him again, the same gentleman might be directed to do it, as it was from him alone he had derived any benefit. There was a slight buffy coat on all the blood. About half an hour after the bleeding, he could lie in any position; and he assured me, that he did not feel enfeebled; but on rising hastily from stool he became faint, and again in the evening, when sitting up to have his bed made. A very little wine gave him immediate relief; and he afterwards ate his porridge with exultation. He slept without interruption in the night, and every night after; next day his respiration was free, and he declared he felt quite well. In the evening (5th April), however, he was more oppressed; pulse 84, full and firm; and I immediately had thirty-two ounces more taken. At first it flowed very freely; but afterwards, from loose cellular substance getting into the orifice, it came away in a small stream, on which account I stopped it. Blood buffy and cupped.

From this period the disease rapidly subsided. The bowels were kept very loose by calomel, gamboge and aloes; the urine rose to ℔ xi. daily. The pulse was generally about 90, full and soft; there was no debility attributable to the bleeding, nor other unpleasant symptoms, unless a degree of chilliness can be considered such; and, on the 28th March, when the Clinical course terminated, I remitted the patient to the ordinary physician, though free from every complaint, excepting a very trifling swelling of the ankles, that he might not be immediately exposed to circumstances which might perhaps hurt him, and that I might have the satisfaction to know that he remained well. Some time after, he was dismissed cured.

As the anasarca subsided, the fluctuation in the abdomen became more evident; but I doubt whether there was any considerable quantity of water effused into the chest. I rather think the symptoms which made me fear hydrothorax, arose from congestion in the right lung, or they would not have been so instantly removed by the large bleeding. On the whole, this patient lost 176 ounces of blood; but I believe no good was done by the two first bleedings, very little by the third; and I am quite persuaded that he would have died but for the two last, by which 104 ounces were taken in thirty hours. I believe also, that had the first bleeding been continued till the pulse became sensibly smaller and softer, the abstraction of much less blood would have effected a cure.

It is curious to observe how fully the kidneys did their duty after the depletion, without the exhibition of diuretics, though previously I doubt whether they were at all affected by the most powerful of these. When Norris first came into the Hospital, the urine was a mere nothing; after the second bleeding it rose to eight ounces. At that time he had taken no diuretic. Squill and mercury were then given; and in 24 hours previous to the third bleeding, he passed two pounds of urine. On the 1st of April, the day after the third bleeding, it was two and a half; and, previous to the great bleeding, three and a half pounds in 24 hours, having used digitalis for two days, omitting every thing else. On the 6th, the urine was three and a half pounds. The digitalis was then omitted. On the 8th, the urine is marked in the Journal as increased, but the quantity is not stated before the 9th, when it is marked eleven pounds; and from this time till the swelling was gone, it continued about that quantity.

It is important also to observe, that, from gamboge gr. ij. calomel and aloes each gr. v., only one or two stools daily could be procured when he first came before us; but, from the 6th of April, the bowels were more easily moved by the same medicine, and the watery stools seemed in as great quantity as the urine.

Croton oil was several times given during the convalescence, in doses of two or three drops at twice or thrice, and generally with what I have found its usual effects, intolerable nausea, excessive griping, and watery stools.

P. S. 6th October.—Since writing the above, I have heard a report that Norris had become affected with dropsy again, *in consequence of debility.* I have retained this letter, till I should inquire into its foundation; and am now persuaded that it has none. I cannot learn that any accounts have been received from the patient since he left this for Ireland; and I saw him in good health the evening before he went away. There were, however, prophets who, at the time of the bleeding, foretold that the disease would return; and I greatly suspect that this is the only explanation which can be given of the relapse. If Norris became again dropsical, shortly after leaving Edinburgh, I am very certain, from the state I saw him in then, that he ought again to have been treated by blood-letting.

St Andrews Square,
19th September, 1821.

VII.

To the Editor of the Edinburgh Medical and Surgical Journal.

SIR,

IT will afford me much pleasure if the Paper which I submitted to you, some time since, appear worthy of a place in your Journal. It was hastily drawn up, from some notes, about two years ago, with the view of furnishing matter for the first Number of a periodical work on Medical Science, then projected by the Bengal Government, but which the Medical Board finally declined to undertake.

You will perceive, that these experiments are only the beginning of a series which I had proposed to make. Should I have future opportunities of continuing the investigation, a further account of it shall be placed at your disposal.

I am, &c. J. R.

An Account of some Experiments made upon Dogs bitten by the Cobra de Capello, or Coluber Naja. By JAMES RANKEN, M. D. of the Bengal Medical Establishment.

BEFORE proceeding to detail the following experiments, it may be proper to state with what knowledge and prepossessions on the subject I undertook to make them.

The use of the volatile alkali, as a cure for the bite of the viper, having been revived in France, the utility of it was controverted, with many indisputable facts, by Fontana; and, ever since, its efficacy, as indeed that of all other remedies formerly in repute, seems to have been doubted in Europe. It would not appear that the Paper by Mr John Williams, in the 2d volume of the Asiatic Researches, "On the Treatment of Persons Bitten by the Cobra de Capello," had at any time attracted much attention at home. A sceptical inquirer, it must be confessed, will remark a suspicious uniformity in the favourable result of the cases; and, judging from scattered passages, perhaps question whether the writer had given enough of his attention to the distinctive characters of serpents, or to the structure of their venomous organs. But, what is more obvious on this material point, he determined the species of the snakes that bit them, chiefly by the reports of his native patients, a kind of evidence which is at best extremely uncertain. Besides many varieties of the naja, there are at least four species of the genus coluber in the upper provinces, which are all venomous, and, when killed, some of them are not readily distinguishable from the former; but of the whole order, in these parts of India, the poison of the cobra de capello is by several degrees the most virulent.

To Mr Macrae's interesting account of his own case, published in a later volume of the above work, I could add about twenty that have occurred to myself, in which men who had been bitten, and were evidently affected, took the spirit or water of ammonia, and recovered. But in none of these was the serpent satisfactorily ascertained; and I never yet saw a person cured whom I knew to be bitten by the hooded snake. It was accordingly to try the effect of certain medicines for the bite of this animal, that I commenced a series of experiments, which the approach of the cold season has prevented me from completing. Having observed the venom to produce at first violent excitement, which soon causes extreme depression, I had formed an opinion, after Mr Williams, that the cure must consist in the counteraction of some powerful stimulant. Further experience has tended to confirm this doctrine; and, in consequence, the remedies employed in these experiments are all of that class. On the same principle, too, I accounted for the inefficacy of the alkali as administered by Fontana, for whose accuracy and candour I entertain much respect. He exhibited it as soon as the animals were bitten; in other words, a strong stimulus acting simultaneously, instead of counteracting the poison, was made to assist it in exhausting the powers of life:

and, having seen men recover when the medicine was given after they had been visibly infected, I conceived that the curative process, or counteraction, ought not to commence till then. The three first dogs are therefore treated in conformity with this theory. To avoid repetitions, I shall mention, under the several heads, those symptoms only which are peculiar to the subject of each experiment. In general, between eight and twelve minutes after the bite, a dog becomes restless; his eyes glisten; the diaphragm is irregularly agitated; the heart palpitates; he slavers or foams at the mouth, and sometimes vomits. In a few instances I have seen the organs of generation under excitement. The skin is warm to the touch, though a thermometer, with its bulb in the groin, does not stand higher than 98°. The eyes become often, though not always, drowsy; and the animal dies frequently without a struggle, but sometimes in slight convulsions.

FIRST SET OF EXPERIMENTS.

Delhi, 1*st July,* 1819.

1*st Case, treated with the Spirit of Turpentine.*—The dog was bitten on the lower part and inside of the foreleg. He showed symptoms of the poison thirteen minutes afterwards. A drachm of spirit of turpentine was poured down his throat immediately, and repeated every ten minutes. He was purged, and apparently much griped. He died a little convulsed, thirty-seven minutes after the first exhibition of the medicine, and fifty after having been bitten.

2*d Case, treated with Spirit of Ammonia.*—This dog being bitten on the neck above the end of the sternum, did not appear affected until nineteen minutes afterwards, when the muscles of his belly became of a sudden violently agitated. He was made to swallow a drachm of spirit of ammonia; in five minutes more another dose was given; but, as he sunk rapidly, and seemed evidently past recovery, no more was administered. The animal died forty-five minutes after being bitten, and twenty-four after taking the first dose.

3*d Case, treated with Spirit of Wine and Spirit of Ammonia.*—A large dog was bitten like the last. Perceiving the medicine had been given too late in the former cases, I endeavoured now to ascertain the commencement of the depression, by watching this dog's eyes, and feeling the pulsations of the carotid artery. I remarked no change in the circulation; but when the eyes became dull and heavy, in about fifteen minutes, I poured an ounce of alcohol, and a drachm of the ammonia, alternately, down the animal's throat, every five minutes. He expired in fifty-six minutes, and forty minutes after he began to take the spirits.

4*th.*—A dog was next bitten on the neck like the two preceding, by the snake which had killed the first and third, besides a pigeon,

and left to his fate. The object was, to discover how long he would live without any remedy. Some slight symptoms came on, but went off shortly; and I have frequently heard since that he is still living.

Being now convinced of the impossibility of tracing the progress of the poison by symptoms in a dog, but at the same time satisfied that the medicines had been administered in too late a stage of the affection to be of any utility, I proceeded on a different plan in what follows.

SECOND SET OF EXPERIMENTS.

Delhi, 16*th September*, 1819.

1*st Case, treated with Arsenic.*—The dog was bitten between the navel and pubis; and immediately had a quarter of a grain of arsenic, in impalpable powder, washed down with water. The dose was repeated fifteen minutes afterwards. He died in thirty-five minutes.

2*d Case, treated with Spirit of Ammonia.*—A very large dog, of a particularly healthy appearance, was bitten under the navel. Poison appeared shed on the spot, but no blood, as is usual, oozed out. Considering this, however, as the best subject likely to be procured for my experiments, I caused another snake to be applied. Two of this one's fangs struck so deep, that they were extricated with difficulty; the punctures bled; and a drop was now observed covering the first bite also. Five minutes had elapsed before he received a drachm of the alkali, which was repeated every ten minutes. The usual symptoms came on. He lolled out his tongue, and panted much. He seemed to get better in rather more than an hour. The medicine was discontinued at the end of the second hour. He seemed to be falling asleep, but was easily roused, about twenty minutes afterwards. In four hours more, or about six and a half after he had been bitten, the only symptoms remaining were a small, hard, and red-coloured tumor, where the fangs had penetrated the skin, and considerable swelling of the belly. This animal was released next morning, as his keeper said, very hungry.

3*d Case, treated with Arsenic.*—This dog being bitten under the navel, swallowed a quarter of a grain of arsenic suspended in mucilage, instantly, and had the dose repeated fifteen minutes afterwards, when he broke loose and ran away. He was reported by my servants to be alive in his former haunts six hours afterwards, but I did not see him.

4*th Case.*—This dog being bitten like the last, and nothing given to him, he died in thirty minutes.

5*th Case, treated with Spirit of Ammonia.*—The dog was bitten between the navel and pubis until the blood flowed. Five minutes afterwards, he swallowed a drachm of the medicine, which was repeated every ten minutes during an hour and a half. He breathed quick, manifesting much languor and drowsiness, without any other symptoms throughout. He was let loose next day, perfectly well.

6th Case.—Remedy—Excision.—The dog having been bitten in the middle of one ear till the blood appeared, it was cut off half an inch nearer the head, five minutes afterwards. Three hours having elapsed, and no signs of infection appearing, the other ear was bitten and severed in the same manner, nine minutes afterwards. I meant it to be ten; but, on re-examining the watch, I perceived my mistake. The usual symptoms appeared, and lasted about twenty minutes; but he recovered without any medicines.

From these experiments, I would draw the following inferences—

The spirit of ammonia, given to a dog five minutes after he has been bitten by the hooded snake, on the belly, or any part destitute of large blood-vessels, in doses of one drachm, repeated every ten minutes, may save the animal's life.

Excision, performed five minutes after the ear of a dog has been bitten, half an inch nearer the heart, will prevent the poison from affecting the system; and, if performed four minutes later, the dog's life may be saved without medicine, though the poison will affect him. But, when not exhibited in less than thirteen minutes after the bite, it is probable that neither spirit of turpentine, spirit of ammonia, nor spirit of wine conjoined with ammonia, will cure a dog, nor even much retard the progress of dissolution. It is my intention to prosecute this inquiry next hot season (snakes being now feeble and seldom seen), for the purpose of confirming or disproving the foregoing results, and of arriving at some conclusion on other points, in which the experiments have been unsatisfactory. I propose, at the same time, to try the efficacy of different remedies when introduced directly into the circulation, a plan which seems to hold out the only prospect of aiding the sufferer on occasions of frequent occurrence. If the fangs, for example, penetrate a large vein, the common rules of practice are, I fear, vain. It was accordingly, with this circumstance in recollection, that I caused the snakes to be applied to the neck, belly, or ear, rather than to the limbs, which abound with nerves and tendons, as well as blood-vessels of considerable size. From this consideration, too, it is obvious, that any attempt to reason or establish facts on the subject, setting aside accidents inevitably mortal, can be founded on the *mean* only of our observations.

In regard to the adaptation of any knowledge which may be attainable, by experiments on inferior animals, to the human species, I have yet much to learn. I calculate, however, from many circumstances witnessed by myself, and from the account of a very experienced snake-catcher, that a man will survive the bite of the cobra de capello three hours, and a dog three quarters of an hour, both without assistance. If this estimate be correct, the constitution of a man possesses four times the resisting power of a dog's. Proceeding on this unsettled ground, we should expect excision to prove successful in the human subject thirty-six minutes after the infliction of the poisoned wound. Or, if the part could not be extirpated, the medicine administered in twenty minutes might avert the fatal issue of the accident.

Advancing from what appear approximations to the truth, I shall now take the liberty of offering a few conjectures and miscellaneous remarks.

The known effects of arsenic on the system, would have recommended it to me, had I been ignorant of its employment in the American Islands; and though its success, against the poison of some serpents, be rather unsatisfactorily recorded, I incline to think it deserving of a fair trial. I chose the spirit of turpentine as a remedy, after reading some accounts of the internal exhibition of it at home; but did not find any reason to confide in its virtues. I entertain an opinion, however, that spirit of wine, in the most common admixtures, may sometimes succeed; and the point is worth ascertaining, since this would be a medicine generally at hand. A Sepoy, who had received two doses of the alkali, when it was expended, took a wine glassful of brandy every ten minutes, instead of two drachms of the other, and recovered, after having lain insensible a considerable time. Another drank half a glass alternately with the ammonia, and was cured likewise. A third, applying to me in a situation where no other remedy was procurable, got a glass of brandy every ten minutes to the extent of two-thirds of a bottle, and was soon well, without being at all intoxicated. Yet, it must be observed, that, in my plan of treatment, the bitten part is always extirpated to the breadth and depth of half an inch around the orifice of the punctures, or to the bone, and the wound is seared with the actual cautery, previously to the administration of any internal medicine. It is certainly better to take the chance, by this precautionary measure, of destroying a portion of the venom, than to trust to our power of combating it in the system. Such an operation, indeed, cannot be performed on every occasion. But I would enjoin the principle of removing, when practicable, as much flesh as the tubular teeth are likely to have penetrated; which can only be done by describing a circle, since it is impossible to discover in what direction they may have slanted. I beg here to introduce two passages from Celsus, not to show my veneration for antiquity, but as containing a tolerable summary of what is still the best practice; and being a proof that, on this head, medical science has improved in the lapse of nineteen centuries, rather by the rejection of some foolish prescriptions, to be found in the same author, than by the discovery of any new remedies.—"Igitur in primis super vulnus id membrum deligandum est; non tamen nimium vehementer ne torpeat: dein venenum extrahendum est. Id cucurbitula optime facit. Neque alienum est, ante scalpello circa vulnus incidere, quo plus vitiati jam sanguinis extrahatur."—"Necessarium est exsorbere potionem meri vini cum pipere vel quidlibet aliud, quod calori movendo est, nec humorem intus coire patitur."—Cap. xxvii. 3. *De Vulner. quæ per morsus inferuntur, &c.*

The cupping-glass thus prescribed, an admirable substitute for the psylli, marsi, or poison-suckers who attended the armies of the ancients, seems a neglected remedy, which might be revived and applied, particularly in cases where excision cannot be practised.

In concluding, I hope not to be thought too visionary if I suggest the possibility of converting this poison, like others, into a medicine. Its powerful action on the whole system appears, in a particular manner, to affect the surface; as the hair and skin of animals sometimes fall or scale off in consequence. The viper-broth, once in high repute, may have derived its efficacy against impetiginous diseases, from a portion of the poison mitigated by boiling, and the action of the stomach. I do not expect to find any opportunity of making the trial. But might not human ingenuity be exercised to ascertain the influence of it, when judiciously administered, on some of the unfortunate beings in the new establishment for lepers at Calcutta? By putting the head of a snake into a phial, and irritating the animal, a few drops of venom will run from its jaws, and can thus be procured for use.

P. S.—It would be a curious fact in Natural History, if the samperas, or snake-catchers in this country, could call or attract *wild* serpents to them, as they pretend, with their music. An untravelled European would perhaps enjoy some merriment at the expense of any one who should listen to such pretensions.* But this art is an article of faith not only among natives of all ranks, but of many European gentlemen of good understanding, and no way over credulous in other matters. Circumstances have been attested to me by eyewitnesses of this description, in a manner calculated to remove all incredulity. Waving, therefore, the question of auditory organs, I could not deny that the undulations of the air produced by a wind instrument, might excite such peculiar sensations on the scaly surface of serpents, as might induce them to come out of the ground. I have now made three serious attempts to get this phenomenon exhibited before me. I was a little startled, at the outset, to find the music, with my atmospherical vibrations, forming only a sort of interlude between the acts of incantation. No deception, however, could be detected on the two first occasions; though the snakes seemed to have been created, rather than piped from the earth; but the imposture became evident when we examined the mouth, and found that it had not, in either instance, a single fang in it. It is only a few weeks since an eminent person in his line presented himself, offering to summon the snake which had bitten a servant of mine. Being stripped of his mystical Geroo robes, and otherwise denuded as far as decency permitted, he was led to the hole, in a stone wall, and set to work. But, in the fervour of repeating his *manter*, or incantation, the tame snake which, after all, had been concealed about his person, crept untimely from its retreat, and hung dangling between his thighs. These men accordingly appear to me nothing more than tolerably expert jugglers.

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* It is generally known that a similar creed obtains in most semi-barbarous countries infested by serpents. The famous traveller, Bruce, believed in the agency of music.

The humbler class of these people that really keep poisonous serpents without extracting their hollow teeth, handle them reluctantly, and with great caution; grasping their heads precisely as another cast of natives do leeches. To these I recommend any one to apply who wishes to make experiments. Pariars, or unclaimed dogs, are everywhere procurable; and, in regard to the inhumanity that we may be charged with, I can only testify, that death by this poison, in both man and beast, is to all appearance calmer and easier than by a musket-ball or bayonet, when it does not prove instantly fatal. Therefore, as thousands of these dogs are slaughtered every year, from precautionary policy, in the most barbarous manner, I see no objection to dispose of a few for the discovery of facts that may be turned to the benefit of mankind. J. R.

NOTES.

I have not the Asiatic Researches at present to refer to, but, according to a note taken from the 2d volume, Mr Williams speaks of, or alludes to, the cobra de capello's bite showing the mark of fangs on both sides, that is, of poisonous teeth *in each jaw;* and in another place, mention is made of *six or seven* of these fangs in one serpent. Naturalists inform us, that they are situated only in the anterior part of the upper jaw; and I have never seen them elsewhere. The hooded snake has commonly four, shaped and moved not unlike the claws of a cat.

Mr Ireland, surgeon of the 60th regiment, when in St Lucia, cured several men with arsenic who were supposed to have been bitten by the coluber carinatus of Linnæus. In one case the bite was so severe, that it rendered amputation of the middle finger necessary; and it seems these soldiers *appeared as if intoxicated.* From whatever cause the last symptom proceeded, it is remarkable that the carinatus is described as a harmless serpent.—See *Syst. Nat.* and *Shaw's Zoology.*

VIII.

On the Use of the Dilute Sulphuric Acid in Cutaneous Affections.

By J. Fosbroke, Berkeley.

My experiments with the dilute sulphuric acid, in *large doses*, have been continued with success.—A lady, who had been long subject to very distressing chronic disorder of the digestive organs, attended with temporary congestions of the spleen, became affected with the *lichen agrius* on the back of her hands and inside of her thighs. It proved very obstinate in its resistance to several topical plans of treatment. I prescribed the acidum sulphuricum dilutum in a decoction of the dermis of the elm, and of the wood of the garden nightshade (Solanum dulcamara), using at the same time, as a wash, a decoction of the deadly nightshade, (Atropa Belladonna). She literally told me that irritation was immediately "deadened." The wash stimulated the diseased surface very much. It was applied previously to the use of the acid, and continued afterwards. The acid can rarely be taken, "in spite of the teeth," long; but the inconvenience may be obviated by using a quill as a syphon, projecting beyond the teeth towards the fauces. Dr Willan has recommended the acid in infusion of roses, with bark, in this disease; but his dose is not *large*, on which all specific effect depends.

Mr Turner, a veterinary surgeon, in large practice at Wotton-under-Edge, Gloucestershire, has communicated to me the two following cases of the use of dilute sulphuric acid in skin diseases. A man suffered severely in consequence of taking violent exercise, by which he became heated, and perniciously drinking cold water immediately afterwards. Small blotches, red, and level with the cuticle, appeared spontaneously. He took the dilute sulphuric acid, beginning with 6 or 7 drops, and continued it for three or four months, during six weeks of which time the dose consisted of 160 gtt. of the acid *undiluted*, taken more than once a day. It effected a complete recovery of his general health, as well as local disorder.

A man who had had, during a long time, swollen extremities and erratic rheumatism, especially affecting the bronchia, recovered by the use of this acid in large doses. He now enjoys robust strength; and his respiration is so much amended, that his capability for psalm-singing, to which he was much addicted, is in higher perfection than it has been for many years past.

I conceive that our practice must err, if we do not regard, with restorative intentions, the condition of the grand system of secretion; and though I greatly rely upon the *alterative* influence of sulphuric acid alone, it may be well, in most cases, to treat the liver as an agent, ever to be suspected in disordered cutaneous actions. For this, let there be given Plummer's pill, in purgative doses; or the pil. cambog. comp. ℈ii. pulv. antim. ℈i. fiant. pil.l. xii., a medicine of no mean powers. At the same time, by this plan we not only confine our curative intentions to the disease apparent, but add into our general schemes of treatment the original disorder of the internal organ or organs; for all that I have seen concurs for the most part with the maxims of Dr Jenner, who, in an ingenious unpublished treatise on the pathology of the skin, announces the probability that "the design of nature, in making eruptions on the external surface, is to protect vital organs, by transferring diseased action to parts not vital."

Berkeley, May 12. 1821.

P. S. I have, since the publication of my former paper, been able to retrace the literary information which suggested to me the use of dilute sulphuric acid in carbuncle. It occurs in the Edinburgh Medical Commentaries. The quotation may gratify those who may have never read them.

"We are informed by Dr Gahn, that the vitriolic acid has of late been much, and successfully employed in some places of Germany, in the cure of the itch. It was first used for this purpose in the Prussian army, in the year 1756, by Dr Cothenius, first physician in Prussia. This practice was afterwards described in a treatise, entitled, "Dissertatio de Olei Vitrioli

Usu in quibusdam Scabiei specicbus," written by Dr Helmich, and printed at Hale in 1762. It was also described by Dr Baldinger, in his Treatise on the Diseases of the Army, which is written in the German language. Dr Schroeder, professor of physic at Gottingen, informed Dr Gahn, that he had frequently employed it in practice; and that he never failed to cure the itch by means of it, in fourteen days at farthest." *

Dr Duncan senior also observes, † "I have thoughts of putting this patient on the use of the vitriolic acid; a medicine which has of late been particularly recommended for the cure of itch. And I am told that the efficacy of it has been fully confirmed, both in cases of scabies sicca and humida, by the able physician Dr Baldinger of Gottingen.—And if, after the failure of the present plan, it shall succeed in the instance before us, I shall have a higher opinion of it than ever. And if the vitriolic acid fail from internal use, I have thoughts of trying it externally; for, when conjoined with hogs-lard, it forms a very elegant ointment."

Sydenham, almost the most delightful, as well as correct of our medical classical writers, speaks with great warmth of the efficacy of sulphuric acid in checking the increase and destructive progress of confluent small-pox pustules, and consequently of the fever which they excite.

The external application of the deadly nightshade was formerly tried, and well spoken of by Dr Graham, ‡ who used it in cases of ill-conditioned tumours and ulcers. Of this I was not aware when my own experiment was made.

IX.

Narrative of a Case of Tic Douloureux. By GEO. NESSE HILL, Surgeon, Chester.

MRS H——, although employed in a sedentary occupation, enjoyed excellent health up to the age of 50. At that age, as she was one day wiping her forehead with a towel moistened with tepid water, a smart stroke of odd pain darted across the part she was rubbing, from temple to temple, including the root of the nose. It went off almost instantaneously; but was sure to be renewed by a similar process, or even if she drew her hand across the parts by accident or design. For nearly four years this was her situation, without consciousness of her general health being at all affected; but about the expiration of this time, mental agitation, sudden exposure to cold air, abrupt transitions of weather, bodily fatigue, or anxiety of mind, would induce a paroxysm of severe pain, accompanied with twitching. Still she continued her daily labour, and neglected seeking for any means of relief, until at length the attacks became more frequent, painful, and durable, extending now down the sides of the nose, and along both jaws, particularly that on the right side; and so readily excited were all these parts, that an attack was sure to follow every attempt to speak, eat, drink, or swallow saliva hastily. Nor were the hours appropriate to sleep exempt. A fold of bedclothes, a current of cold air, or even the hand touching any part of the face accidentally, proved sufficient exciting cause to agony of suffering, with mere snatches of unrefreshing slumbers. The first medical man was consulted, at the crisis when the pain first descended from the forehead. He said the malady was a severe rheumatic affection, and would give way to perpetual blisters, purging, and then the bark; which plan was immediately put into execution, and carried on with much assiduity to a considerable extent, but without even temporary relief; for now emaciation commenced, as the patient believed, owing to her dread of eating. The celebrated Whitworth doctors were then requested to prescribe for her. They directed a more extended use of blisters; a stimulating lotion for the face and head, to be used cold, and an acrid sternutatory; internally, some violent cathartics were the only means employed: but the whole plan made not the least salutary impression on the malady, and it was abandoned. The next medical adviser was a veteran of the bold and desperate class of practitioners. He was the first who gave her disease its usual appellation; at the same time telling the patient he had consulted his books, and could promise her a speedy cure, for it was merely a local nervous disorder. He directed leeches to the temples, and, on their bites ceasing to bleed, the parts to be covered with blisters; which remedies excited severe erysipelas, attended with such a degree of tumefaction of the face and throat as to threaten suffocation. It was relieved by cooling, active purges in a few days, without even mitigating the nervous affection. As soon as she was able to admit a finger to enter her mouth, an examination of the teeth took place, which was attended by so severe an attack of the dreadful spasms, as to cause the sufferer to scream out, and shrink from the hand of the operator; at which he was so angry as to exclaim he could not bear such affectation, and ordered her out of the house; but speedily called her back, apologized, and declared she had a "damned tic douloureux," and she must undergo an operation. Upon her consenting, he took a scalpel and cut all along both jaws of the right side down to the bone, in the direction of the alveoli, commencing the incisions as far back as he could reach, and bringing them forward to near the chin. Much blood followed, but not the smallest relief. A few days subsequent to this operation, a second was performed, by dividing the infra-orbitar nerve of the same side. Into all these wounds tincture of guaicum and brandy were injected, adding much to the misery.

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* Edinburgh Medical Commentaries, pp. 103-104.

† Dr Andrew Duncan's Medical Cases, Vol. i. p. 48.

‡ Edinburgh Medical Commentaries, Vol. i. p. 419.

The next ineffectual procedure was the application of an actual cautery along the track of the first incisions, without producing any good effect, or arresting the progress of disease for one instant. Soon after this, icterus showed itself in a mild form. Cathartics appeared to remove it in about a month; at the end of which time, the excruciating spasms seemed to originate about the roots of several partially decayed molar teeth on the right side; and these were all removed at one sitting. Still no relief. At a last consultation, the surgeon declared he must divide every nerve of the face, or he could not promise a cure. On hearing this appalling declaration, the patient left this "desperate man," as she called him, to apply to a new practitioner; who, upon examining her mouth, took a knife and made an incision completely across the palatine arch; but neither this incision, a course of active cathartics, nor a mild mercurial course, with a warm bath, procuring any ease, large doses of laudanum were directed. This medicine procured temporary remission of pain, but no permanent removal; and sometimes the largest doses were inert. Blisters and leeching were repeated, with as little good effect as before; that is to say, with evident aggravation. Arsenic pills procured from the shop of a druggist, and the dose augmented from one to three *per diem*, after a very short trial, induced sickness, and were left off. The warm bath, when used in an evening, invited sleep; and when sleep came on uninterrupted by the spasmodic twitchings, it has, although rarely, lasted till morning, and Mrs H. has awoke refreshed. A sort of mongrel practitioner happened to come to this city at this time, to commit depredations on a too generous and too credulous people, Mrs H. was induced to apply to him. After a very cursory examination, he gave it as his opinion that all the orbitar nerves must be divided, especially the left supra-orbital, where the pain and twitching were now most agonizing. This proposal was agreed to *instanter;* and the success was so far complete, that she derived immediate relief in that spot; nor has the pain ever been so violent there since, but yet did not wholly leave that eye, and became much aggravated in the other, wandering all over the face, progressively. Every nerve at the sides of the nose, chin, and about the right eye, was divided, until the poor creature resembled a tatooed Indian; but the benefit derived from nine incisions, the actual cautery, and all the medicines exhibited, could hardly be said to amount to mitigation of increasing agony. Recourse was now had to the belladonna, and conium internally and externally, to tar-varnish, soap liniments with opium, the aq. saturn., &c., all of which means, and, after them, opium and digitalis in combination, were pushed as far as prudence would admit, most of them being carried on until delirium was induced. It is necessary to state, that none of the incisions were kept open, by encouraging digestion. Thus twenty years passed away, when the very valuable discovery made by Mr Hutchinson, that carbonate of iron had been often successful in the removal of tic douloureux, became promulgated, a fellow-sufferer from this gigantic disease having derived benefit from its use, encouraged Mrs H. to a trial. She took ʒi. *ter die*, which was as large a dose as she could get down, or retain when down. Six ounces of the medicine were thus consumed, when, finding her sufferings scarcely ameliorated, the iron was abandoned for opium pills, which were taken so as to bring on stupefaction. A new medical man was, in this stage of the poor old creature's tortures, introduced to her by a surgeon on the Staff, who had shown her unremitted attention. The latter gentleman proposed dividing the nerves behind each ear, and some remaining twigs on the face; but this plan was rejected, on the ground of having received so little benefit from the former operations. Her anxious friend being ordered to a distance of 200 miles, the practitioner he had introduced undertook to call occasionally upon this veteran of suffering, now 70 years of age, but, as will be readily imagined, with little hope of rendering her any benefit. Upon a minute investigation of her then present state of general health, it appeared that the alvine evacuations had long been in an unhealthy state, sometimes scanty, dark-coloured, and scybalous; at others profuse, acrid, and mottled; her appetite either voracious, or the reverse; her tongue furred; pulse feeble and quick; a skin affected alternately with chills and hot flushes; her nights tormenting, and her days but little different. She was first put upon the constant use of the mildest aperients until the evacuations were improved, when a strong decoction of cinchona, infused upon quassia, was regularly taken in as full doses as the stomach would admit; at the same time, a grain and half of pure opium was taken every morning, and repeated at noon when pain was unusually severe; constipation and foul evacuations being guarded against by interposed doses of sulphate of magnesia. Thus some ground was gained, especially as to better nights; but still a new sufferer would have deemed the quantum of pain endured by this aged victim intolerable. It was determined to afford another trial to arsenic. It was begun in doses of three drops of the mineral solution gradually increasing the dose up to twelve drops three times a day, omitting the opium, excepting occasionally, when severe paroxysms occurred. When arrived at nine drops, she was better, and expressed confidence in the plan. At the end of a month, being free from pain, and the system being evidently under the influence of the arsenic, its further use was discontinued *gradatim*. She continued well for several weeks, until the bowels again became irregular. Then a ptyalismic soreness, attacked the mouth, the principal seat of the soreness being the part of the mouth first operated upon. Twitchings soon followed, and then a bearable degree of the old evil; but, on regulating the bowels, and returning to the solution, all was speedily corrected, and the medicine a second time left off. Three months afterwards, the bowels were much affected with diarrhœa; but no shocks of the old misery returned. Epsom salts removed the complaint; and no further use of the arsenic has yet been required. Mrs H. walked half a mile a few days ago (to see her medical friend), in good health and spirits.

25th October, 1821.

X.

Case of Painful Subcutaneous Tubercle. By DAVID LAING, Surgeon, Thurso.

M—— G——, ætat. 30, a stout, healthy looking woman, applied to me, about the middle of July 1820, with a small tumour, which she described as excessively painful. It was situated on the left leg, about an inch below where the tendons of the gastrocnemius and soleus unite to form the tendo achillis; on its inner edge sunk pretty deep in the direction of the malleolus externus, not very evident to an observer, nor easily grasped, and about the size of a horse-bean.

She first observed it about two years before, like the head of a large pin; since then, it had gradually increased in size, until about six or seven months ago, when it had gained its present size and appearance; and the pain became more severe. She said she felt a constant tingling, painful sensation; but sometimes severe paroxysms came on, which she described as most excruciating, often bringing on syncope. If a paroxysm seized her when walking (which it often did), the painful sensation which she then experienced was, to use her own words, as if an immense weight had suddenly come upon her, fixing her immovably to the earth. She was then in the eighth month of pregnancy; at the beginning of which, the pain had become much more severe than it was formerly, and had always been increasing. Being so far advanced in pregnancy, and judging, from her own account of the case, that delivery might in some degree remove the affection, I determined upon waiting till then, and see the effect. With a view, if possible, of alleviating the pain, I ordered anodyne fomentations, and afterwards poultices, to be applied; but without the least beneficial effect. I advised her to wait until after delivery, when, if the symptoms were in no degree mitigated, the tumour should be cut out. I saw her again about a month after being delivered, when she informed me that the affection was in no degree changed from what it had been during pregnancy. She blamed the affection also for the state and appearance of the child, who was very small, particularly the head, delicate, unhealthy, and had very much the appearance of an idiot. She had four children before, all of whom were very stout and healthy. I ordered her to procure a nurse for the child, after which, I was to remove the tumour. Two months elapsed ere a nurse was got, during which period I saw her occasionally. The symptoms were in no degree alleviated; her health was becoming much impaired; and the state of the child was daily assuming a more alarming appearance. A nurse having at last been procured, I cut out the tumour. Having passed through it a suture needle with a ligature, that I might secure it steadily, I made two curvilinear incisions, and dissected it out. It was firmly imbedded in a sac, and appeared to be of a cartilaginous nature. The edges of the wound were brought together by strips of adhesive plaster, a compress laid over, and a roller applied round the foot and leg. The patient felt very little pain; the lips of the wound adhered, and in a few days healed. She was then able to walk about with little or no pain. She has experienced no attacks of pain since. The health of the child is much improved; but that appearance still remained, when I saw him last, which denotes the mental faculties to be impaired.

Thurso, 20th June, 1821.

PART II.

CRITICAL ANALYSIS.

I.

Additions à l'Anatomie Générale de Xavier Bichat, pour servir de complément aux Editions en quatre volumes. Par P. A. Beclard, Professeur d'Anatomie, et de Physiologie à la Faculté de Medécine de Paris, &c. A Paris, chez J. A. Brosson et J. S. Chaudé, Libraires, Rue Pierre-Sarrazin, No. 9. Septembre, 1821.

The numerous and varied objects of the material world may be referred to two great divisions; they are either living, or inanimate—they are organized, or they are inorganic—they are characterized by vital, or by physical properties. When the individuals of these two general divisions of material substances are made the subject of examination by the human faculties, they give rise to the creation of several distinct branches of knowledge; which, although in some points approaching each other, are, however, in their general characters, so remote and different, that they have in modern times been arranged by themselves, and appropriated to different labourers in the field of science. All inanimate and inorganic matter is characterized by physical properties,—is under the influence of physical laws; and the information which is daily acquired and communicated concerning them, constitutes the several divisions of the physical sciences. Every thing, on the contrary, which lives and is organic, possesses not merely physical, but vital properties,—is under the influence, not of physical, but of physiological laws; and the branches of human knowledge in which their phenomena are investigated and explained, form what may be named the physiological sciences; the principal object of which, according to the most correct and enlightened views, is to ascertain the structure, properties, and functions of living beings. In a more detailed sense, the study of the world of organic and living bodies comprehends two great objects—the knowledge of structure and functions; and all that is, or can be known, of such beings, whether animal or vegetable, may be referred to these two general heads, under the technical names of Anatomy and Physiology.

The former of these sciences may be considered as of two different kinds; in the one of which the animal body is examined, as it consists of different organic substances; while, in the other, the situation, figure, and volume of the several organs and members, form the chief subject of inquiry. Every animal body consists of many organs, and each organ is composed of various kinds of substance, which are in many respects widely different from each other;—the artery differs from the vein, the muscle from its tendon, the tendon from the ligament, and the nerve from all. Those structures even, the mechanical form and distribution of which are the same, are nevertheless unlike in their intimate organization. The serous membranes differ from the mucous and fibrous, and have scarcely two common properties. Yet as these various and unlike substances are employed in the formation of animal bodies, it is requisite, in order to have a correct and complete idea of the animal structure, to study separately these tissues, as they have been named, and to ascertain the proportions in which they are present in the various organs of the body. As in the chemical composition of organic bodies, we have proximate chemical principles; so the anatomical knowledge of the same bodies suggests a species of analysis, in which the body is separated into proximate principles of an anatomical character, and in which these constituent or elementary tissues are examined and arranged by genera and species. The knowledge which is obtained in this manner, constitutes what has been named General Anatomy; and although the necessity of it to a just view of the animal organization is obvious enough, yet it is almost entirely a modern and recent department of anatomical science.

The degree of abstraction and generalization which a good system of general anatomy implies, is an ultimate result of the minute knowledge of detailed and local anatomy; and we accordingly find, that all the views given by the ancients are vague, hypothetical, and imperfect. We perceive, indeed, in the works of Haller, Bordeu, and some other physiologists, various attempts at simplification, and reference of the animal tissues to a fibre or fibres, which, after the manner of the ancients, they imagined to be the fundamental or elementary tissue; but this was rather a hypothetical fiction —a violent generalization—than any approach to the sober and patient review and comparison of the various kinds of substance which enter into the composition of an animal body. So much fictitious anatomy, in short, and so much mystical physiology, was the genuine offspring of this speculation, that the most wonderful part of its history was unquestionably the importance of the names by which it was so long sanctioned; and the considerable progress which the medical sciences, and especially rational pathology, have recently made, is mainly to be ascribed to its explosion, and the adoption of a more palpable and obvious course of inquiry. The progressive improvement of this division of medical science may afford at once the twofold feeling of pride and humiliation to every one whose patriotism makes him delight in the literary glory and reputation of his country. Although British physicians and pathologists first gave these rational views of the structure of the living body,—though the names of Cullen, Hunter, and Carmichael Smith will appear in medical history as in some respect the founders of a new era in anatomical physiology,—yet the love of the useful, and the disregard for every thing not immediately applicable to practice, for which our countrymen have been peculiarly distinguished, have obviously prevented them from sharing in the honour and credit of founding a complete and magnificent system. It has been often remarked, that science is cultivated by the English rather for the actual advantages which it confers, than for any charms which it may be supposed to possess; and that they have been most assiduously devoted to those branches of philosophy which were susceptible of application to the business of life, and which thus improved the condition of the human race. How far this may be correct as a general assertion, we do not propose at present to inquire; but truth compels us to admit, that the analytical anatomy of the organic animal elements was suggested in this country by the variations in the phenomena of disease, as they incidentally occurred in different situations of the human body; and the partial and limited views which were in this manner implied, rather than taken, form but a small and inconsiderable portion of the task which was conceived and executed by Bichat. Mr John Hunter, whose talent for analytical observation can never be too highly appreciated, was perhaps the first author who, in this country, decidedly rejected the easy and simple views which the more ancient pathologists delivered of the animal organization. His more devoted admirers may perhaps say, that he was the only author who did so; but, as it is difficult to determine how much he had borrowed from the views and opinions of his brother, and as it is certain that the analytical anatomy of the human body had not entirely escaped Dr William Hunter and Dr

Cullen, we cannot justly admit that Mr Hunter did much more than explode the simplifying doctrines of the ancients, and open the field for more rational and natural principles. A pardonable, but mistaken zeal, has influenced not a few to rest more decided and positive claims on the character of Dr Carmichael Smith, who certainly made an addition of some importance to general anatomy, in his observations on the inflammatory action, as it is modified by difference of tissue. * Of these pathologists, it would be unjust not to admit the merit, and unpatriotic not to feel proud; but we do not agree with those who think, that, because Mr Hunter and Dr Smith did something, they therefore accomplished all that was requisite; nor do we believe, that the comparative obscurity into which their labours have, in the natural progress of science, descended, ought to be viewed as the effect either of ingratitude or insensibility to their talents. Notwithstanding all that has been observed and thought by Mr Hunter, and all that Dr C. Smith has taught, the sole merit of framing and executing a great general plan, of collecting and arranging the isolated information of several different inquirers, and ascertaining many new points himself, belongs undoubtedly to Bichat. We see no reason for agreeing with those who deem this author chargeable with ingratitude and plagiarism, because he has not acknowledged, at every page, either the information which he derived from Mr Hunter, or the subjects of which he had merely hints, and which he personally enlarged and verified. The peculiar merit of Bichat consists, not in these petty or minute matters, but in the conception of an extensive view of the animal structure, in the arrangement of the whole, and in the selection and completion of its details. The scattered information of previous authors was of comparatively little or no value, till concentrated and directed by his master hand; and the character of his work is founded not merely on the individual details, but, in a particular manner, on the general effect which is produced by the whole.

The most satisfactory proof, perhaps, which can be adduced of the superior excellence of Bichat's system of general anatomy, is the sovereign influence which the principles developed in it have since exercised on the progress of most of the medical sciences, but, above all, pathology, and practical medicine. We do not wish to favour the blind and devoted attachment with which most of his countrymen seem to have regarded his talents and character; nor would it be easy to pro-

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* Of the different Kinds or Species of Inflammation, and the Causes to which those differences may be ascribed. By James Carmichael Smith, M. D.—*Medical Communications*, Vol. II. p. 168.

duce a more irrational mode of accounting for the progressive advancement of pathology, than some zealous partisans of this anatomist have advanced; but we think it can scarcely be disputed, that much of the precision of modern pathology is mainly to be attributed to the influence of his doctrines; and we are certain that the course of investigation which they have suggested has contributed, in a remarkable degree, to economize the time and labour of the pathological inquirer. In this respect, the indirect influence of his labours has been almost as great as the actual perusal or intimate knowledge of them could have effected; for the spirit which has been thus diffused among medical observers, and the train of investigation into which they have been led, has operated on many to whom the general anatomy was known only through the indirect information of others. To our own countrymen, who do not advert to the condition of French medicine when Bichat appeared, these observations may appear unfounded; but their truth must be obvious, we think, to all who are moderately acquainted with the state of Continental medicine in general about thirty years ago, and who know how much has since been done by Pinel, Corvisart, Laennec, &c. With the most distinguished mathematicians, the most dexterous and ingenious chemists, and, in truth, the most able philosophers in every other department, France could scarcely boast a single physician whose opinions or whose practice would enable him to bear a good comparison with an uninitiated youth who had spent his first year in the University of Edinburgh, or in lounging between St Bartholomew's and Guy's Hospital. Paris, indeed, had always been celebrated for anatomical studies; but the impression which the appearance of Dessault made is a sufficient proof, that, with the most admirable opportunities of dissection, and with the most extensive and magnificent hospitals in Europe, either their opportunities were thrown away with the most heedless inattention, or they knew not how to render available the treasures of knowledge to which they had access. To the French physicians and surgeons, John Hunter had lived and experimented and observed in vain; and we verily believe, that unless a man such as Bichat had risen among themselves, they would have gone on to the present day with their characteristic spirit and zeal in fighting, equating homologous terms, and detonating gases, with as much felicity as any other accomplished European nation, but would never have thought it possible to be instructed by English surgeons or English pathologists.

It could scarcely be expected that the systematic views of Bichat, however correct, and however conformable to nature, when first announced, should, at an interval of fifteen or twenty years, be equally complete, or even true, in every detail; or convey to the student the information which he requires, as well at this hour as many years ago. The progress of anatomical and physiological science, and, we may add, chemical and pathological, which we are certain is not stationary, renders this in a great measure difficult, if not impossible; and almost no systematic work, however perfect or full, can be expected to supersede the necessity of further and more detailed investigation into the nature of the animal tissues. It is exceedingly probable, that, had the ingenious author, who was cut off at the early age of 31, survived the publication of his work ten or even five years, he would himself have been the first to recognise its imperfections, and would have laboured, even amidst the fatiguing professional duties with which he was beginning to be overwhelmed, to improve the arrangement and the subordinate matter, and render it as perfect as the work of any individual author could be expected to be. The circumstances, however, to which we have alluded, have left the work in the same state in which it came from the hand of its master; and no one has yet appeared who has at once had the courage and the success to make any important or material changes on the arrangement, the advantages of which might recommend them to the majority of anatomists and pathologists. We have indeed seen new arrangements of the animal tissues by Chaussier, Dupuytren, and Richerand, but not one of them, so far as we know, has been so generally received as the original one of Bichat; nor do we think that any of them is so free from objection as that. M. Beclard, who is perhaps the best qualified, by his pursuits, opportunities, and habits of patient and careful observation, has had the wisdom to avoid this subject entirely; and the single circumstance of his doing so, and merely supplying what was wanting, and correcting what was erroneous, might well deter others from attempting what M. Beclard seems to have considered either as perfect as circumstances admitted, or so difficult as to render any attempt useless and ineffectual. He has, however, performed a much more scientific and valuable task. Instead of interfering with the general arrangement, he has collected all the information on the individual subjects which the observations and investigation of twenty years have supplied; and, by adding all the facts regarding the animal structures, has brought down the labours of his distinguished prototype to the present day. This work forms a kind of occasional commentary on those parts of Bichat's system, which, imperfect observation, premature inference, or the natural and progressive acquisitions of science, have rendered defective or fallacious.

In our further analysis of the additions which M. B. has made to the work of Bichat, we shall attempt to exhibit a brief, but correct view of the present state of general anatomy, so far at least as the limits within which we are circumscribed will permit us.

It is generally known, that Bichat's arrangement presents the following twenty-one tissues as composing the various organs of the animal body. 1. The cellular system; 2. the nervous system of the animal functions; 3. the nervous system of the organic functions; 4. the arterial; 5. the venous; 6. the exhalant; 7. the absorbent and its glands or ganglions, as they are now called; 8. the osseous system; 9. the medullary; 10. the cartilaginous; 11. the fibrous system; 12. the fibro-cartilaginous; 13. the muscular system of the animal functions; 14. the muscular system of the organic functions; 15. the mucous; 16. the serous; 17. the synovial; 18. the system of the secreting glands; 19. the dermoid or cutaneous; 20. the epidermoid or cuticular; 21. the pilous system. These systems, as they were named, he subdivided into two classes; one of which, consisting of the common or generating systems, was generally, or at least extensively, distributed through every part of the body, and entered into the composition of all the other tissues so uniformly, that it was believed that no individual or particular system could exist without them. The second class of the organic tissues consists of those which are found only in certain determinate situations, and are never found either contributing to the organization of each other, or of the general tissues. To the first, Bichat referred the cellular, arterial, venous, exhalant, absorbent, and nervous; of the second class, every one will perceive examples in the osseous, cartilaginous, fibrous, and muscular systems, which cannot, in general, exist without some of the common ones at least, and which are found in certain regions and situations only, and may therefore be named particular or individual tissues.

Every one who is moderately familiar with the nature of animal bodies, will perceive that this division is more valuable as a convenient and useful artificial contrivance, than as a just and true arrangement, founded on natural distinctions. It is obvious, that the general tissues are by no means so universally distributed as the arrangement would lead one to infer; and this difficulty had not escaped the author himself, who admits, that, while in the majority of parts, we find exhalant vessels at least, several individual tissues present neither arteries nor veins, at least none which convey red blood; some little cellular membrane, and not a few, are entirely destitute of nerves. We should even be disposed to modify these conclusions, in order that they may more intimately accord with the truth of nature.

The exhalant vessels, if they really exist, are to be viewed merely as terminations of arteries,—as arteries, in short, into which, in consequence of their tenuity, we cannot always trace the coloured parts of the blood; and it is scarcely requisite, therefore, to consider them as forming a system distinct from the arteries. The lymphatics have been long known to open ultimately into the venous system; and, as some recent observations have shown, that they communicate often directly with veins, and perform a duty vicarious in some degree to these vessels, they may, without much violence, be deemed a modification or variety of the venous system. On the general anatomy of the nerves, we had occasion to deliver our opinions pretty fully some time ago, and our limits will not permit us at present to resume the subject. With such considerations in our mind, however, we think that, in framing an arrangement of the common textures, we must submit to the alternative, either of changing their name and character, or of reducing them to three at most; 1*st*, arteries with exhalants; 2*d*, veins with lymphatics; 3*d*, cellular membrane, which, under one form or other, seems to be more generally distributed than any other tissue whatever. But, as even under these limitations, objections must occur to the principle on which this class of organic tissues is founded; it would perhaps be preferable to derive their character from features more purely anatomical, to consider them as tissues of distribution or ramification, which would at once get over the error of saying that they are universally distributed, and express nothing more than the strict fact regarding the mode in which they are disposed throughout the body.

The general distribution of the cellular or parenchymatous system was first maintained by Haller and Aug. de Bergen, and afterwards more completely insisted on by Bordeu. Its appearance and properties are well known. The existence of cells, however, which was taught by these and most subsequent authors, has been rejected by Wolff, and, more recently, Blumenbach and J. F. Meckel have maintained a similar opinion. M. Beclard has adduced the proofs or arguments on which this dissent from the general doctrine is formed; and we think they may be referred to the following points. 1*st*, That the disposition of fibres or plates, of which the cells are said to consist, is referable to the mode of dissection, exposition, and demonstration; that the appearance described is the effect of forcible separation and distension, precisely as a portion of softened glue or mucous matter is separated into thready filamentous fragments by frequent manipulation and violent stretching. 2*d*, In the same manner, if we understand M. B.'s statement correctly, these authors explain the effects and phenomena of fluids injected into the cellular tissue. The cells or cavities which anatomists demonstrate by insufflation, did not exist, they contend, previous to the introduction of the air, and are the result of the forcible separation of particles by the presence of a foreign body. We confess, that to us these objections seem by no means without force; and they would certainly not occur to minds either of an imitative or illogical character. But we think they derive much of their force from the misconception of the terms employed; and we are almost certain, that the difference between the descriptions of both parties is greatly less than the first glance of the subject would lead one to suppose. We are not unwilling to admit, that many writers have made the *cellular* arrangement a much more symmetrical and uniform thing than it actually is; that they have often deceived themselves regarding the form of these cells, and the mode in which they communicate; for, when they inform us at once that this tissue is a series of cells, and that these cells communicate, that is, open into each other, they are certainly bound to state in what manner,—at the bottom, top, sides, or every where. If so, they are obviously improperly named cells; for the other party, we imagine, deny that to be a cell which is open every where. This whole matter amounts, therefore, to a mere difference in names—a sort of war of words, which is waged and prolonged purely because the parties neither conceive nor define accurately the subject of the contest. We consider it to be unquestionable, that there is beneath the adipose tissue on which the skin rests, a particular substance which envelops all the muscles, enters between them and their fasciculi, surrounds the large vessels and nerves, is extended between the mucous membranes and the subjacent parts, the serous membranes and the subjacent parts; and that this substance is composed of very minute thready lines, which follow no uniform or invariable direction, but which, when gently raised by the forceps, presents a confused and irregular net-work; that between these lines there are spaces of a figure not easily ascertained, and perhaps not uniform; * that these spaces are naturally filled with the most common and usual of all fluids, the watery portion of the blood; and that they must naturally communicate, as there are, in the sound state, no sufficient barriers to prevent this communication. There are no broad plates, no honeycomb cells, nothing, in truth, which demonstrates a regular arrangement of cavities, such as some authors have fancied; and all that the most careful, but unbiassed observer can recognise, is an extensive interweaving of innumerable minute and slender threads, not exceeding the size of the silk-worm threads, and which would lead one to name it the filamentous or interlacing tissue.

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* Bichat, tome i. pp. 44, 45.

The cellular tissue is found not only surrounding and enclosing all other organs, but penetrating into their substance, and uniting together the atoms or fibres of individual or peculiar tissues of which they are composed. In three situations it occurs extended in a continuous and uninterrupted form, on one surface of a particular order of organs; 1*st*, beneath the skin; 2*d*, beneath the mucous membranes; 3*d*, beneath the serous membranes. The subcutaneous cellular membrane is so generally known, that we must not occupy the time of our readers in any notice of it. The other two kinds seem to be almost entirely the same; they are both equally fine, dense, and delicate, as may be perceived on peeling off either the villous or serous membrane from a portion of intestine. The subserous is more susceptible of inflammation than the submucous; and while the former may become distended with air, as in emphysema,—or serum, as in general dropsy, these fluids are never found in the latter. Around the trunks of arteries, veins, and even nerves, we remark a species of cellular membrane, very close and compact, not easily divisible into its component fibres, and extended, like a membranous cylinder, round the vessel or nerve to which it is attached. This forms the cellular or external tunic of arteries, but ought not to be considered as belonging to the arterial tissue; it is simply a modification of the cellular system, suited to the situation in which it is placed. It is very similar to the submucous cellular tissue; never becomes the seat of serous or adipose deposites, and becomes inflamed only with the greatest difficulty. Analogous to this is the cellular envelope surrounding the veins, though greatly less compact and thick.

The most important point relating to this tissue, is the question of the difference or identity of the cellular and adipose membrane. Most of our readers are aware, that, in the British schools, it is taught, that the membrane in which adipose matter is deposited, is considerably different from the common cellular membrane, which is every where present. Bichat's arrangement led him to overlook the independent existence of an adipose membrane; but, in admitting that no fat is found in the cellular membrane of the penis, prepuce, scrotum, &c. beneath the mucous membranes, round arteries, and veins, in the brain and spinal chord, and in the substance of the lymphatic glands, and most of the organic systems, he considers the cellular membrane of these parts as peculiar; and he further observes, when speaking of the respective organization of these parts, that while real cells, or minute cavities, mutually communicating, are observed, nothing of this nature is recognised in the former situation. Although Bichat's account may seem to many, as to us, explicit enough, yet M. Beclard has certainly furnished a commentary of great value. According to the dissections of Aug. de Bergen * and Morgagni, and the demonstrations of W. Hunter and our author himself, the organization of the adipose tissue consists of rounded *pelotons*, separated from each other by furrows of various depths, of a figure irregularly oval, varying in diameter from a line to half an inch, according to the degree of corpulence, and the part submitted to examination. Each *peloton* is composed of small spheroidal particles, which may be easily separated by dissection, and which are again said to consist of an assemblage of vesicles still more minute, and agglomerated together by a very fine and delicate cellular tissue. Many wonderful stories are related by microscopical observers, of the minuteness and various appearances which these ultimate vesicles present; but for the particulars we must refer to the observers themselves, viz. Monro, Wolff, and Clopton Havers, the first and last of whom observed them in the medulla of bones, and, brilliantly enough, compared them to strings of minute pearls. If the fat with which they are generally distended should disappear, which happens in many instances, the vesicles collapse, their cavity is obliterated, and they are confounded with the contiguous cellular membrane, without leaving any trace of their existence. Hunter, however, assures us, that in such circumstances the common cellular membrane differs from that which consists of adipose vesicles, in containing no obvious or similar cavities. It is indeed easy, on other grounds, to distinguish them from each other by obvious characters. 1*st*, The vesicles of the adipose membrane are closed all round, and, unlike the cellular tissue, they cannot be generally penetrated by fluids which are made to enter them. If, for example, the temperature of a portion of adipose membrane be raised, by means of warm water, to the liquifying point of the contents, they will remain unmoved so long as the structure of the vesicles is not injured by the heat. If, again, an adipose *peloton* be exposed to a solar heat of +40 centigr., although the adipose matter ought certainly to be completely liquified, yet not a drop will escape until the vesicles are divided, when it will appear in abundance. This structure of the adipose vesicles is of especial use in the animal body; for, if they were so disposed as to communicate, since their contents are nearly fluid in the living body, they would obey the impulse of gravity, and, like dropsical infiltrations, would uniformly incline towards the most depending region. *2d*, It may be further remarked, that the adipose vesicles do not form, like the cellular tissue, a continuous whole, but are simply in mutual contiguity. This arrangement is demonstrated by actual inspection; but becomes more conspicuous in the case of dropsical effusions, when the cellular tissue which is interposed between the adipose molecules is completely infiltrated, while the latter are entirely unaffected. Lastly, M. B. might have remarked, the anatomical situation of the adipose membrane is very different from that of the cellular tissue. The former is found immediately beneath the skin, and between the folds of the peritoneum which form the omentum and mesentery, between the muscular and the membranous tissues of the heart, and round each kidney. It varies somewhat in these situations; and the quantity of adipose matter deposited is different in each region. In the least corpulent persons, a considerable quantity of adipose matter is deposited in the adipose membrane of the cheeks, orbits, palms of the hand, soles of the feet, flexures of the joints, &c., round the kidneys, and beneath the pericardium. In more corpulent persons, and chiefly in females, it is found not merely in these situations, but extended in a layer of some thickness, almost uniformly over the whole person. In such individuals, it is most abundant in the neck, belly, mons veneris, and flexures of the joints.

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* Caroli Augusti a Bergen programma de Membrana Cellulosa, apud Haller Disput. Anatom. Select. Vol. III.

The general anatomy of the arterial system presents a multitude of objects the most interesting and important to the physician and surgeon; but we must, however reluctantly, confine our observations to the mere organization or structure. Every arterial tube greater than one line in diameter, is visibly composed of one adventitious, and two essential substances. The internal surface of the arterial tube is formed by a very thin, semitransparent, polished membrane, which is said to extend not only in the one direction over the surface of the left ventricle, auricle, and pulmonary veins, but in the other to form the minute vascular terminations which are distributed through the substance of the different organs. This membrane is particularly described by Bichat, under the name of common membrane of the system of red blood; because he believed it to exist wherever red blood was moving,—in the pulmonary veins, in the left side of the heart, and over the entire arterial system. It is distinguished during life by a remarkable activity in forming the morbid states to which arteries are liable. *1st*, Its free or unattached surface becomes the seat of the adhesive inflammation, whenever the blood ceases to pass through it, either by the application of a ligature, or any gentle force which keeps the opposite sides of the vessel in contact. 2*d*, Its attached or adherent surface is generally the point at which osseous or calcareous matter is deposited, when an artery begins to be affected with what is usually called ossification.

Exterior to this common or internal membrane, is placed a dense, strong tunic of considerable thickness, of a dun, yellowish colour, and which, when minutely examined, is found to consist of fibres disposed in concentric circles, placed contiguous to each other, round the axis of the artery. If this substance be examined, either from without or in the opposite direction, it will be found that, by the delicate management of the forceps, the fibres can be separated to an indefinite and incredible degree of minuteness, even to that of a hair; and that they uniformly separate in the same direction. Longitudinal fibres are visible neither in this nor in any other tissue of the arterial tube. This is the proper arterial tissue; the one which, in truth, essentially characterizes and distinguishes it from all others. Its dun yellow colour, which is uniform and invariable, is perceived through the semi-transparent internal membrane, and is more conspicuous either when this is removed, or when the external cellular envelope is detached, and the component threads separated from each other; and if it seem less remarkable in the smaller branches, it is because the tissue on which the colour depends is here considerably thinner. When a branch rises from a trunk, the circular fibres of this membrane separate, and form on each side a semicircular hoop, from which arises a complete ring, within which are enclosed the smaller rings of the branch given off. These circular fibres proceed to the prominence of the common membrane which is observed within the arterial cavity.

The nature of the proper arterial tissue has formed one of the most contested points in all physiology; and an erroneous notion of its necessary connexion with the properties of the arteries in aiding the motion of the blood, and giving rise to morbid conditions of the circulation, has led to much controversy, and not a little violent reasoning. The muscular nature of the middle or proper tunic was long a favourite principle, and long sustained by many proofs and arguments. Bichat, however, examined these, and showed satisfactorily, as we think, that the arguments actually went for nothing, and that the proper arterial tissue was as different from muscular texture in any form and in any part, as it is possible for two things to differ from a third. The circumstances from which Bichat derived his proofs of the non-muscular nature of the proper arterial tissue, were chiefly the properties of this tissue, and certain facts by which he showed that the active and essential part of the circulation was performed by the heart. The arterial tissue, he remarked, was close, elastic, fragile, and easily divided by a ligature; the muscular tissue, on the other hand, was more loose, by no means elastic, and the ligature, the effect of which was exceedingly different, produced simply a cutting of the part to which it was immediately applied, and a strangulation, but no division of the subjacent parts. The action of alcohol, diluted acids, caloric by means of hot fluids, which are not corrosive, is likewise another proof of the difference of these tissues, all of which effect a species of crispation which seems to depend on the greater coagulation of one of the chemical principles.

To these proofs, which we think show that the arterial tissue by no means resembles any modification of the muscular system with which we are acquainted, a more direct one has since been added by Berzelius; who asserts that no fibrine can be shown to exist in the proper arterial tissue.* M. Beclard, however, in enumerating the reasons assigned by such authors as Haller, Walter, and Sœmmering, for believing this substance muscular, asserts, that he has ascertained that it contains a certain quantity of this proximate principle. We are ignorant of the process or tests which M. Beclard has employed to determine this point; but we are in particular need of some powerful reasons to make us doubt the testimony of the Swedish chemist, who has devoted so much of his analytical ingenuity to the elucidation of the chemistry of animal bodies. But it may further be deemed an evidence against the muscular nature of the arterial tissue, that even Beclard himself expresses doubts of it; and concludes by saying, that it is better to refer it to the yellow fibrous or elastic system, than to account it a tissue, the basis of which is of a muscular or fibrinous nature.

When the attention is directed to the organic properties, or those which are most obvious during life, the same results are remarked. Neither a mechanical nor a chemical agent, applied as a stimulus, produces any change or motion in the arterial tissue. The puncture of a scalpel or needle demonstrates nothing like irritability. We have taken frequent occasion to verify this observation personally, by exposing the artery in a limb the moment after amputation, while the muscles were still in active motion; yet the most careful examination, with repeated application of the instrument directly to the arterial tissue, produced nothing like contraction, or the phenomena of irritability.

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* A View of the Progress and Present State of Animal Chemistry. By Ions Jacob Berzelius, M. D. Professor of Medicine and Pharmacy, &c. &c. Lond. 1813. 24-25.

We are at a loss to understand why M. B., when speaking of the effects of the electric spark by Bikker and Van-den-Bos, and of galvanism by Vassalli-Eandi, Giulio, and Rossi, has omitted to notice the very interesting experiments of M. Nysten, who has taken singular pains to verify the opinions of Bichat, and disprove the conclusions of the Turin physiologists. Besides several unavailing attempts to excite the aorta in the human subject, immediately after the extinction of general life by decapitation, and when the muscular system, both voluntary and involuntary, was still in full contractile power, he was equally unsuccessful with the arteries of the living dog. Among other experiments, he details the following. "I tied," says M. Nysten, "in a living dog, the two trunks which arise from the arch of the aorta, and which supply the head and the thoracic extremities with blood; I tied the artery itself above the origin of the common iliacs. The animal died, as may be concluded, during this operation; and the aorta continued full of fluid blood. I pierced it as quickly as possible, near the middle of its length, by the pointed and open extremity of a glass tube, smaller than those employed in injecting the lymphatics with quicksilver. The moment the tube was introduced, the blood rose in it to the height of 12 or 14 millimetres (6 or 7 lines). Having marked the point at which this fluid stood in the tube, which I then committed to an assistant, I applied galvanism to different parts of the aorta, which, however, exhibited no sensible motion; the blood remained in the tube at the same point to which it first rose; and it may be presumed, that the most trivial contraction of the artery would have made it ascend above this." *

The effect of chemical agents on the arterial tissue is equally inconclusive. The change which is effected is indeed a contraction, but it is decidedly the contraction of crispation,—takes place in the dead artery with as much facility as in the living—and is the result of the action of the substance employed on the coagulable matter of the tissue. It avails not to say that the entire division of an artery is followed by retraction, and diminution of its circular area; this is likewise an effect dependent on the mechanical or chemical nature of the tissue, on the elasticity and contractility in consequence of the absence of the distending force, and must not be regarded as any thing analogous or similar to irritability. It is indeed true, that many of these phenomena are most conspicuous while the artery may be said to continue in life, and are no longer observed when the

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* Nouvelles Expériences Galvaniques faites sur les Organes Musculaires de l'Homme et des Animaux à Sang Rouge, &c. Par P. H. Nysten, Médecin, &c. A Paris. Brumaire, An XI. pp. 325, 326.

body has been several days lifeless; but it is to be remarked, that such an event would by no means demonstrate the irritability of the tissue, but merely show that the characteristic properties were much influenced by the perfection and integrity of the organization; and were impaired or lost when this began to be affected in the ordinary course of decomposition. Such an event, it is obvious, is not peculiar to the arterial, and must await all the tissues, which quickly lose any properties by which they have been characterized, when deprived of those actions in which life consists.

It is not, however, by induction from direct observation of structure or properties, that the muscularity and irritability of the arterial tissue has been maintained. By a more circuitous, and inverted mode of reasoning, it has been supposed that the actions of the circulating system could not be carried on without a muscular power in the arteries, and that, therefore, this muscular power must be inherent in this tissue. Ever since the mechanical and physical notions of Boerhaave were banished from physiology, and shown to be inconsistent with the properties of living beings and organic textures, a foolish and confused idea has prevailed among the imitative and unreflecting spirits of the profession, that all mechanical properties whatever ought to be excluded from the actions of the living body; and it was further imagined, that in supposing the arteries destitute of muscular power and irritability, one of the principal agents of circulation was destroyed. Much inconsistency and absurdity was thus encouraged; for it seems to have entirely escaped these physiologists, that the part of the system which was thus most perfect in power and structure, was in truth least in need of it. The proper arterial tissue is thickest, strongest, most abundant and conspicuous, in the large trunks through which the blood is evidently impelled by the action of the heart alone; but smallest, weakest, and least distinct, in the branches and their divisions where the impulse of the heart is greatly less. The thickness and elasticity in the former situation, is requisite to resist and meet, in some degree, the force with which the heart acts and propels its contents; and it is in this way only that it promotes the motion of the fluid impelled. In the small branches, however, this tissue is so thin and scanty as to be scarcely perceptible; and it is not demonstrable, nor can we infer that it exists, in the capillaries. Yet your defenders of arterial muscularity and irritability justly contend, that here it is most necessary, since the action of the heart cannot operate in producing the blood's motion, which must, therefore, they argue, be accomplished by some power of the arteries. It is at this spot of the chain of reasoning that the incoherency is most conspicuous; for the unsophisticated inference from such premises, would obviously be the reverse of that which it is their object to prove. While we contend that the proper tunic of the arteries is not muscular, we do not deny that some peculiar power may exist in the capillary system, by which the blood may be moved through it; nor, in truth, is the non-muscularity and absence of irritability of the arterial tissue by any means connected with the properties or actions of the capillary system. It is impossible to avoid being surprised, if any thing could excite our surprise, at the confused and indistinct notions which have led physiological writers to suppose, that what was ascertained regarding large trunks of the arterial system, was applicable to the minute divisions and terminations of that system; or that, in explaining the properties and actions of the capillary system, we could derive all the necessary information from what we saw in the arterial tubes at large. Never, perhaps, was conclusion so impotent and inconsequent. The anatomical characters of the trunks and larger branches are very different from those of the minute divisions to which we give the name of capillary system; and, according to every rule of just and reasonable inference, there must be a material and palpable difference in physiological properties. While, therefore, we admit, in their fullest extent, the force of the experiments of Haller, Home, Thomson, and other physiologists, as they apply to small arteries and capillary vessels, we positively deny that the conclusions thus formed can apply to the larger vessels.

The exterior surface of the proper arterial tissue is enveloped by a layer of dense cellular membrane, such as we have already noticed,—which is very firmly attached to it, and which was formerly considered a part of the arterial tissue. It is merely adventitious, a modification of cellular membrane, which establishes a communication between the artery and the contiguous parts, but is, notwithstanding, very necessary to the nutriment and healthy state of the vessel. It encloses and transmits the minute vessels, anciently denominated *vasa vasorum;* and, if it be detached even through a trifling extent, the arterial portion thus denuded is sure to become dead, to be affected with an inflammatory and sloughing action, and ultimately give way and discharge the contents of the vessel. M. Beclard considers it a fibro-cellular membrane, which may, in the large arteries, be divided into two layers, one external, more similar to the general cellular membrane, the other inside, between this and the proper tissue, yellowish and firm, but still sufficiently different from the proper arterial tissue. It is this tunic which we remove in dissecting arterial preparations; and it is not unimportant to remark, that in certain regions, for example the brain, this process is unnecessary, in consequence of the want of the cellular sheath; while in other situations, as the chest and abdomen, its absence is supplied by a portion of pericardium, pleura, or peritoneum. But, even where the arteries are partially covered by such membranes, we always find the delicate cellular tissue, a small portion of which seems to connect them to the arterial tube.

On the venous system, we shall refrain from any observations, as our limits prevent us from doing the subject justice.

After all that has been observed and written on the circulation, we cannot avoid thinking, that little is accurately known regarding the nature, actions and properties, of the capillary system. If any one will calmly interrogate himself, what he means by the term capillary system, he will quickly discover, we think, that a vague and undefined idea is attached to the term. Bichat informs us, that it is not only the common intermediate system between the arteries and veins, but the origin of all the exhalant and excreting vessels. If we reflect on the mode in which arteries have been said to terminate, and veins to take their origin, we shall discover, that in this view there are some points which are doubtful, and some which are inconsistent with the rest. Haller, and all the physiological authorities since his time, have concluded, chiefly from the phenomena of injections, sometimes from microscopical observation, and, where these failed, from the obscure and uncertain lights of what has been vaguely named analogy, that if an artery be traced to its last divisions, it will be found to terminate either directly in a vein or veins,—in excreting ducts,—in exhalants into some of the cavities or surfaces,—in lymphatics,—or in very small arterial vessels which convey only a colourless fluid. A similar application of the same facts has assigned a mode of origin to the veins not much unlike; and, if these conclusions be just, and be derived from trustworthy experiments and observations, we cannot avoid the inference, that the capillary system actually consists of all these orders of vessels. When we come to examine this more precisely, however, it will be found, that an inconsistency is implied, in saying that the red and colourless minute vessels, which alone are identical with the capillaries, are in the same rank with the exhalant and excreting vessels, and give rise to them. If they truly give rise to these vessels, it is absurd to say that they must be classed with them. But the existence of these same exhalants and excreting vessels seems by no means so certain as it has been represented. It is obvious, as M. B. has justly remarked, that if we are guided by strict observation, there are no more reasons in favour of the existence of exhalants, than of the lateral porosities of Mascagni. An experiment of Bleuland proves, indeed, that there are such things as vessels which convey a colourless part of the blood in direct communication with the arterial system; but these colourless terminations of arteries are likewise continuous with veins; and amidst the multitude of stories of injections, exudations, transudations, &c. we are not in possession of a single fact, by which we could certainly show, that these actually open on the surfaces or cavities in which they are said to open. The communication between the arteries and the excreting vessels is equally problematical, at least in several of the glands; for in the pancreas, in the salivary and lachrymal glands, the transit of any fluid thrown into the arteries is slow, difficult, and often imperfect; while it is much more rapid and uniform in the liver and kidneys. The whole doctrine, indeed, of the exhalant and excreting vessels is so obscure, so little susceptible of proof, and so pregnant with fanciful or fictitious matter, that it is impossible, in the present state of our information, to recognise what is taught concerning them as in any degree a portion of certain and unfluctuating science. To what conclusion, then, are we to come regarding the capillaries? in other words, in what mode do the arterial terminations communicate with the venous *radiculæ*, and what is the intermediate system which Bichat conceived to exist between these two orders of vessels? We are inclined to think, that the present state of the facts will admit of nothing more to constitute this capillary system than those minute vessels, whether conveying coloured or colourless blood, in which injections show that arterial branches at once terminate, and venous *radiculæ* have their origin. But, in order to frame correct notions on the subject, it would be requisite to examine all the modifications of these vessels in every organ and texture, and to multiply, much more than has been hitherto done, the observations on the minute disposition of the vessels in each.

The second class of systems or tissues which occur in the composition of the animal body, consists of those which are peculiar to certain apparatus, which are confined to certain definite situations, and which, in composition, consist of two or more of the general tissues, with one which peculiarly distinguishes each of them. Bichat considered it a matter of indifference in what order they are arranged or examined; and, accordingly, does not attempt a division. We should however imagine, that a very natural line may be drawn between them in the following manner. Some of them are found to be of such a mechanical figure, that they are necessarily collected together in particular spots, and never found beyond these. Such are the bones, the muscles, the tendons, the ligaments, the cartilages, the fibro-cartilages, the glands, &c. Of others, again, the form is such, that they are stretched or extended over several textures or organs even of a different nature. Such are the membranous tissues or systems; for example, the most extensive of all, the skin and its appendages, the mucous or villous membranes, the serous membranes, the synovial and the fibrous membranes.

As the general anatomy of the osseous system is so extensive, that we cannot hope in this place to do it any justice, and whatever is ascertained is so generally accessible that this is in some degree unnecessary, we believe we shall not displease our readers by omitting the subject entirely. On the others, our observations must be brief and cursory.

The cartilaginous system is found at least in three different situations in the human body; 1*st*, On the articular extremities of the movable bones; 2*d*, On the connecting surfaces of immovable bones; 3*d*, In the parietes of certain cavities, in which the purposes of the animal economy require bodies of this elastic nature.

The organization of this tissue is obscure and indistinct; but, with a little attention, it is possible to recognise longitudinal fibres, which are intersected by others in an oblique and transverse direction, but without any determinate order. The most certain proof of their organic nature is the serous exudation, which appears in the course of a few seconds after a clean division of the cartilage by the knife. M. B. has been at some pains to collect different opinions on the mode or style in which the fibres are arranged; all of them we conceive equally tenable, and equally incapable of being proved. Duhamel, he informs us, conceived them to be concentric plates,—a notion derived from certain appearances which he observed in his experiments on the bones of animals fed with madder. Hunter and Delassone, on the contrary, asserted, that the cartilages of the movable articulations, which were easily broken in the direction of their thickness, presented perpendicular fibres implanted in the bones. The costal cartilages were supposed by Herissant to consist of spiral plates turned on each other; but by Mascagni, of bodies which radiated from the centre to the circumference of the substance.

Besides the peculiar and appropriate animal substance which characterizes this system, we find one or two of the common or generating tissues. Cellular texture is asserted by Bichat to form the mould or basis in which the cartilaginous substance is deposited. The capillary system carries from the arteries only the colourless parts of the blood into it; yet it is remarkable, that many other colouring substances, which are found occasionally in this fluid, communicate an obvious tinge to the cartilaginous parts; such is, for example, bile in jaundice, which uniformly renders them yellowish. No nerves are found in this tissue.

The fibrous system occurs in the human subject in two forms; either membranous and expanded, or fascicular and collected. Of the former, we find four varieties; *1st*, the peculiar or proper fibrous membranes; *2d*, the fibrous capsules; *3d*, the tendinous sheaths; *4th*, the aponeurotic coverings of muscles. The second consists of two varieties only, the tendons and the ligaments. This arrangement, which was formed by Bichat, included some animal substances which subsequent observation has shown to differ considerably from each other, and is therefore modified in the hands of M. Beclard, who proposes to divide the fibrous system into two great orders; one comprehending the white or albugineous fibrous organs of M. Chaussier; the other the yellow or elastic substances. As the former order coincides with the entire fibrous system of Bichat, with the exception of some species of ligaments, we shall merely notice them first, and subsequently advert to the yellow fibrous system of M. Beclard.

The proper fibrous membranes are the periosteum, the dura mater, the sclerotic, the albuginea, and the membranes of the kidneys. That of the spleen, which Bichat places in the same family, is considered by Beclard to differ so much, that he is inclined, though not very decidedly, to look on it as belonging to the tawny fibrous system.

The fibrous capsules, which ought to be distinguished from the synovial surfaces, are cylindrical bags which are found round certain articulations, especially the scapulo-humeral, and ilio-femoral, in which the motion of unlimited opposition requires membranes of their figure and strength.

The fibrous sheaths are perhaps the least extensive of the membranous forms of the fibrous system; they are found enclosing and supporting the tendons, particularly of long muscles, in situations where this disposition would force them from the bone or bones to which they are contiguous. They form, in this manner, an indirect attachment to the bone; and one of the principal effects proceeding from the property which they have of binding down, as it were, the tendons to which they are applied, is, that the direction of the motion of the muscle is altered by them. They are most numerous in the carpal and tarsal, and in the metacarpal and metatarsal regions.

The aponeuroses occur in the form of fibrous webs, which are uniformly connected with the locomotive muscles; to which they either act as general envelopes and coverings, or as means of insertion and connexion with the osseous system. Of the former there are instances in the fascia lata of the thigh, and in the intermuscular fasciæ of the leg; and the latter variety is remarked in the attachment of the triceps, of the rectus, &c.; while we recognise a mixed character in the aponeurotic portion of the external oblique, which terminates in the ligament of Poupart.

The entire fibrous system is almost peculiar, in being all connected with itself, and forming one uniform whole, to which the periosteum, the most extensive division of it, is, as it were, a general or common centre. This will be obvious to any one who recals the following considerations; 1*st*, that the dura mater, the external surface of which is an internal periosteum, is connected with the pericranium by the holes of the cranium; 2*d*, that in the fibrous capsules, each extremity is interwoven with the periosteum of the bones, which form the articulation; 3*d*, that the fibres of the tendinous sheaths, all the aponeuroses, the tendons, and the ligaments, are interwoven and mingled with the periosteum. The only exception to this arrangement is the albuginea, the perichondrium of the laryngeal cartilages, and the investing membrane of the kidneys.

Whatever be the form in which these various parts are presented, the organization seems to be essentially the same. An animal substance of a whitish colour, formed like a small, but strong thread, very tough, and somewhat elastic, is the individual element into which it may be generally resolved. Several of these placed in parallel juxtaposition, and connected by cellular membrane, give rise to the fibrous appearance by which the system has been long distinguished. But in some of the modifications, instead of the parallel arrangement, we remark the fibres running in every direction. This is most obvious in the membranous forms of the fibrous system, as the periosteum, dura mater, &c. The properties of this tissue are chiefly of a physical nature. Those which are vital, are simply such as are referable to its nutrition and organization. It is powerfully resisting, and is perhaps one of the strongest tissues in the animal body. The action of caloric, alcohol, and diluted acids, induces crispation in a very conspicuous manner;—an effect which is principally to be ascribed to the change induced in the albuminous substance which seems to form the chief chemical principle in them. Like the cartilaginous tissue, the common systems which are found in it, are referable to the exhaling terminations of arteries, and colourless veins; no nerves have ever been recognised; and Bichat expresses his ignorance of absorbents being traced into the fibrous system. It is a point of some interest in the relations and connexions of the fibrous system, that it is almost the only one which forms the tribe of compound membranes, which consist of a serous or a mucous or a synovial membrane united to a fibrous one. There is indeed scarcely such a thing as a simple membrane to be found in the animal structure. The dura mater is by no means such; for the outer or cranial portion is distinctly fibrous in structure and uses; while the inner, or cerebral, is formed by a reflection of the arachnoid membrane. The same may be said of the bag of the pericardium, the exterior layer of which pertains to the fibrous system; but the internal is a true serous or diaphanous membrane, a continuation and reflection of the pericardium of the heart.

The yellow ligaments which connect the spinous processes of the vertebræ to each other, differ considerably from the divisions of this system, and have suggested to M. Beclard the necessity of establishing a particular order of fibrous tissues, to which he proposes to apply the name of yellow or tawny fibrous system. Under this head he includes, as we have already noticed, the proper membrane of the arteries, that of the veins and of the lymphatic vessels, the membranes which form excretory ducts, that of the air passages, the fibrous covering of the cavernous body, the membrane of the ureter, and perhaps that of the spleen. The actions, and particularly the occasional distensions to which these parts are liable, require a resisting power, which may at once counteract any extraordinary effort, and cause them to resume their original state, as soon as the distending causes cease to operate. This tissue occurs indeed in every situation which requires a resisting power in constant operation; and in this respect differs from the ordinary fibrous tissue, of which the resistance is merely passive; and also from the muscular, the resistance of which continues merely during the contraction of the fibre. In the lower animals, these purposes are more conspicuous than in the human subject. The posterior cervical ligament (*ligamentum nuchae*), counteracts the tendency to inclination of the head; and a similar membrane strengthens the abdominal parietes, and resists the weight of the viscera. In the whole of the feline tribe, an elastic ligament inserted into the unguinal phalanges retains them in the extended state so long as the muscles do not alter their direction. The shells of the bivalve molluscous animals, as oysters, muscles, &c. are opened by a similar fibrous tissue, as soon as the muscles by which they are closed are relaxed.

The disposition of the component fibres is the same in the elastic as in the common white fibrous system. Their colour, which is yellow or tawny, is generally more obvious in the dead subject. They are said to be less tenacious, but more elastic, than those of any other tissue. In respect to chemical composition, they appear to contain a considerable quantity of fibrine, combined with a little gelatine and albumen.

Intermediate between the cartilaginous and the fibrous system, Bichat ranked that of the fibro-cartilages, which comprehends three subdivisions; 1*st*, the membranous fibro-cartilages, as those of the ears, nose, trachea, eyelids, &c.; 2*d*, the inter-articular fibro-cartilages, as those found in the temporo-maxillary, and femoro-tibial articulations, the inter-vertebral substances, &c.; 3*d*, certain portions of the periosteum, in which, when a tendinous sheath is formed, the peculiar nature of the fibrous system disappears, and is succeeded by a modification evidently belonging to the class of fibro-cartilages.

M. Beclard has followed Meckel in rejecting the first of these subdivisions, the objects of which do not differ in nature from common cartilage. Like it, they do not present the distinct fibrous structure, but are covered by a perichondrium, the fibres of which have evidently misled those who account them fibro-cartilaginous.

M. Beclard has given the following synoptical table of this system.

The Fibro-Cartilages are—	I. Articular;—connected with the articular surfaces of bones; they may be divided into	1. Free, or unattached; those of the inferior maxillary bone.	
		2. Attached—	α. by their extremities; those of the clavicle, of the inferior extremity of the ulna, of the knee-joint.
			β. by one of two surfaces; the circular cartilages of the glenoid and cotyloid cavity.
			γ. by both surfaces; the intervertebral substances, those of the pubal bones, those between the sacrum and ilium.
	II. Tendinous—almost all of them correspond to tendons.	1. Flattened; those of tendinous sheaths.	
		2. Circular; the pulley of the superior oblique of the eye, the annular ligament of the radius.	

In presenting the general anatomy of the muscular organs of the human body, the substance of the ancient arrangement of voluntary and involuntary muscles was retained by Bichat, under the peculiar names of muscles of the animal and organic life; while a few, *e. g.* the diaphragm, urinary bladder, &c. seem to be of a mixed nature.

The intimate structure of these varieties of the muscular system, differs in a few minute particulars. They all agree in being formed of peculiar fibres or lines, consisting certainly of a particular proximate principle, generally of reddish or fawn colour, sometimes however white. Some inquirers have bestowed much pains and time in ascertaining the size or volume of these fibres; but this inquiry seems to be essentially absurd, for the visible size of the fibre evidently varies in different muscles. The fibre, or rather the component line, is most minute in the muscles of the organic life, in the heart, for example, and in the muscular parts of the alimentary canal; it is larger and more distinct in the diaphragm and some of the muscles of the perinæum, in the psoas magnus, &c.; and it is very large and coarse in most of the muscles which move the extremities.

But the most fruitless and chimerical part of the inquiry into the muscular organization, is that regarding the cylindrical or globular figure of the fibre. Bichat seems to have been aware that nothing was ascertained, and that this attempt to go beyond what was simply visible, and to resolve the apparent fibre into more minute elements, was at once liable to great fallacy, was a source of much fancy, and was not to be attended with any useful result. The intimate nature of this fibre is absolutely unknown; and whatever has been said on its continuity with vascular and nervous extremities, on the supposed cavity, and the marrow which this cavity was imagined to contain, is only a collection of vague and fanciful ideas, which are confirmed by no positive proof, and with which a methodical and rigorous mind ought not to be satisfied. Notwithstanding the opinion thus expressed by Bichat, our author has laid before his readers a short analysis of the labours and opinions of anatomical authors on the minute nature of this fibre;—a task which he has performed better than it merited; for we must say that, notwithstanding the great names which have been connected with this profound and delicate investigation, it is impossible for us to recognise any new or ascertained fact,—any precise information on which we might rely. We are indeed satisfied, that the ingenious manipulation of Muys, the dreams of Prochaska, and the micrometrical labours of Sprengel, have done nothing for the general anatomy of this system, more than had been effected by the unaided scalpel and forceps, with the effects produced by maceration and boiling; and though the microscopical observations of Meckel and Sir Everard Home were verified, we cannot perceive in what manner the knowledge, that a muscular fibre consists of opaque globules connected by a transparent medium, could render the properties or functions more intelligible.

We cannot agree with the conclusion to which M. Beclard has come, on the dependence of the muscular irritability on the nerves which are distributed on these organs; nor do we think that the arguments which he has adduced, either in opposition to those of Bichat, or in defence of his own opinion, are sufficient to settle the point in an undoubted and unequivocal manner. In expressing ourselves thus, we are not influenced solely by the reasonings of Bichat, but by the two facts, that the contractility of the different muscles bears no proportion to the number or quantity of nervous filaments going to these muscles; and that it is quite possible for this property to be much impaired, or wholly destroyed, in one or more muscles, while the nerves are entirely unaffected. It is well known, that the nervous filaments which go to the heart are so minute and so few, that authors of no ordinary authority have denied that this organ received any nerves at all; yet it retains the property of excitability, irritability, or contractility, much longer, and in greater perfection, than the pectoral, the gastrocnemius, or the deltoid, in all of which we perceive much larger and more numerous nervous fibrils; and there are local forms of paralysis, in which no agent, either electrical or galvanic, can induce contractions, yet the nervous branches are found, on examination, completely unchanged. This is scarcely the place to enter on a subject so complicated, and demanding so much rational examination and cautious inference; but to us it appears, that all that we hitherto know of the mutual relations of the nervous and the muscular system, show, that irritability, contractility, or excitability, is a property inherent in, and peculiar to, the muscular fibre; and that the chief use of the nervous system is to regulate and direct the actions which are the direct result of this irritability, and which would be liable to numerous deviations without such a regulating influence; and to place the muscular system in general, and the voluntary one in particular, *in relation*, if we may express the fact in such language, with such other organs as the sound state of the body requires.

The most extraordinary part of Bichat's ideas on the motions of the organic muscles, is that of their dilatation or relaxation, as it would be called, being a phenomenon as vital as their contraction; that it was not a passive state which succeeded to their contraction, and was not occasioned by the forcible introduction of some substance into their cavity, but an active condition, depending as much on the power of the muscular fibres as their contraction. The whole of the arguments which he has adduced may be referred to a different mode of expressing the same fact,—exactly as the dispute with which the chemical world have been so long perplexed, about the positive or negative nature of cold,—whether it were a positive quality, or merely the absence of heat.

While M. Beclard does not absolutely deny that the involuntary muscles may be dilated, and the voluntary ones lengthened, by a proper vital power, he nevertheless considers most of the facts from which these conclusions have been derived, as depending on causes which have no concern in producing the effect in question, or as the result of the cessation of those actions in which the shortening of muscles consists. The protrusion of the tongue, the elongation of the proboscis of the elephant, of the bodies of certain reptiles in creeping, which are the instances commonly adduced, are not examples of direct muscular elongation, but are the result of the shortening of other muscles. In the leech, for example, there are two orders of muscular fibres, one longitudinal, the other circular; and though the contraction of the former necessarily shortens the body of the animal, yet when these are relaxed, and the circular ones thrown into action, the effect is to lengthen and extenuate the leech. The proboscis of the elephant is likewise subject to the action of two orders of fibres, by one of which, the longitudinal, it is shortened, while, by the other, which radiate, the organ is elongated and extended. Our author therefore concludes, that this opinion,—so inconsistent with the phenomena of muscular action,—has originated in ignorance of the true arrangement of muscular fibres, and incapacity to estimate the various effects of the contraction of these fibres in the direction of their arrangement.

The individual organized systems, or tissues, which we have hitherto noticed, are of such a configuration, that their situation and extent is limited principally to the locomotive apparatus, or to particular regions of the internal organs. But a very important and interesting order of tissues, of a different character, is presented in the skin, the villous or mucous membranes, and the diaphanous or serous membranes. In all of these, the physiologist remarks a great extent of surface, which is stretched over many tissues and organs exceedingly different in structure and properties, and which is the seat of several of the most important actions of the animal body; and the two latter, the mucous and serous membranes, are placed in such relation to each other, that in general they form the opposite surfaces of the same organ, or part of an organ.

Of the first of these membranous organs, the most uncertain point is the existence of the corpus mucosum. Haller, Camper, and Blumenbach were inclined to deny the existence of this part of the cutaneous system in the skin of the white, and to admit it in the negro only. According to M. Chaussier, the skin consists of two parts only, the derma or cutis vera, and the epidermis or cuticle; the first embracing all the organic elements of this tissue, between which it was impossible to establish any distinction; the second being an inorganic substance, prepared by the organic, and deposited on its surface. Beclard, however, is of a contrary opinion, and thinks, that a peculiar matter, which occasions the colour by which the different races are to be distinguished, is found between the exterior surface of the corion and its semitransparent covering, and that no fair race is destitute of it, except the *albino*, the peculiar appearance of whom he attributes to the absence of the mucous net of the skin. To these conclusions M. B. has been led, principally by the recent observations of M. Gaultier on the Skin of the Negro, and those of M. Dutrochet on the Cutaneous Tissue of Quadrupeds. According to the former of these authorities, the mucous body of the negro skin consists of four parts; 1*st*, a series of minute vascular bundles, to which M. G. has applied the name of "bourgeons sanguins," and which are really the termination of vessels ramified on the papillæ; 2*d*, the deep whitish layer, consisting of white vessels, and indicated in an oblique section of the negro skin, by a white line between the surface of the corion and a darker undulating line; 3*d*, the coloured layer, named by M. G. *gemmules*,—the true colouring matter of the skin,—indicated by the undulating line already noticed; 4*th*, the superficial white layer, consisting of serous vessels as the first, indicated by a white line between the dark undulating line and the cuticle.

As the first of these parts, viz. the vascular eminences (*bourgeons*), are merely the terminations of the cutaneous papillæ, M. B. is inclined to follow M. Dutrochet in reducing the constituent parts of the colouring net to three. According to this view, we find the following enumeration of the individual parts of the cutaneous system given by M. Dutrochet. 1*st*, The derma, or corion, the true skin of the ancient anatomists; 2*d*, the papillæ, or minute elevations of this membrane; 3*d*, the epidermal membrane of the papillæ, which is the deep whitish layer of M. Gaultier; 4*th*, a coloured layer, the proper colouring matter of the skin; 5*th*, a horny layer, which corresponds to the superficial whitish layer of Gaultier; and, 6*th*, the epidermis, or cuticle.

By removing the epidermis of negro skin by long maceration, the colouring matter may be obtained separately. Beclard thinks it analogous to the colouring matter of the blood; and informs us, that it is derived neither from the coloured layer, nor the *gemmules* in which it is situated, but from the papillæ; an inference which he seems to draw from the phenomena observed in removing the negro epidermis by vesication, when the part so treated is found at first white, and afterwards beginning to become coloured at many minute points, which gradually enlarge, and ultimately coalesce with each other. The view of Gaultier himself, that this matter is secreted by the hairs, is quite inadmissible, since it is not restricted to the bulbs of this system, but uniformly diffused over the whole surface.

To demonstrate the movable nature of the colouring matter, our author has recourse to the examples mentioned by authors, of women becoming black during pregnancy, of men undergoing the same change in consequence of mental vexation, and of negroes losing their colour in old age, and in diseases. The skin of the new-born negro, he remarks, is not black, but like the fairer races, is red, and only slightly yellowish. After birth, however, the nails, eyes, nipples, and the genital parts, are surrounded with a brown circle; on the third day these parts only are black, and the rest of the person is hitherto merely of a tawny colour. On the seventh day, the colouring is generally diffused, but continues pale, and indifferently marked during infancy; its intensity augments gradually with the growth and age of the individual; but the parts first coloured are observed, during life, to be of the deepest shade. These successive changes, which, it must be admitted, are observed in the fair tribes of the human race, induce M. B. to conclude, that the colouring matter is in unceasing motion, and that it is constantly undergoing an alternate secretion and absorption.

We must presume that our readers are well acquainted with the general distribution and course of the mucous membranes; that they are aware that the first division, or gastro-pulmonary, comprehends that membranous surface, which commences at the various orifices of the face, at which it is contiguous with the skin, and is continued through the lachrymal and nasal passages, by the larynx on the one hand to the bronchial membrane, and by the œsophagus on the other through the entire tract of the alimentary canal, at the opposite extremity of which it is again identified with the skin.

The distribution of the second, or genito-urinary mucous membrane, is slightly varied, according to the differences of sex. In the male it is connected with the skin at the orifice of the urethra, from which it proceeds inwards toward the bladder; sending previously small prolongations through the ducts on either side of the veru montanum, from which it is believed to be continued through the vasa deferentia to the vasa efferentia of the testicle. Continued over the inner surface of the urinary bladder, it is prolonged through the ureters into the pelvis and infundibula of the kidney. In the female, besides passing in this direction, it ascends into the uterus, and passes through the fallopian tubes, at the open extremity of which it terminates in an abrupt opening into the sac of the peritoneum;—the only instance in the whole body in which a mucous and a serous surface communicate directly and freely.

These two great membranous tissues have each two surfaces, an attached or adherent, and a free one. The adherent surface is attached, 1*st*, to muscles, as in the tongue, most of the mouth and fauces, œsophagus, and entire alimentary canal and bladder; 2*d*, to fibrous membranes, as in the nasal cavities and part of the larynx, in which it is attached to periosteum or perichondrium, the palate, ureter, and pelvis of the kidney; 3*d*, to fibro-cartilages, as in the trachea.

Those parts of the gastric division of the mucous membrane, the adherent surface of which is attached to muscular organs, undergo very considerable changes in motion. That at the cardiac extremity of the œsophagus is propelled into the stomach in the form of a round thickened ring, every time that a quantity of food is conveyed into that viscus. In the same manner, the villous membrane of the rectum is protruded outwards, and made to assume a similar form whenever the contents of that bowel are expelled. Throughout the whole canal, in short, it is made to undergo various motions and changes, according to the action of the muscular parts.

The surface of these membranes is by no means uniform, or similar in every part. The appearance of the pituitary or schneiderian membrane, is very different from that of the stomach or intestines; and the free surface of the urethra is unlike that of the bladder. These differences in appearance depend on a real difference of structure, and are connected with a difference in properties; yet it may be observed, that anatomists have, unwisely enough, applied what they ascertained or saw in one part to the whole, and have thus created a system, in which some truth is blended with considerable misrepresentation; and many assertions which are correct in one respect, are totally unfounded in others. We shall say nothing of the mucous corion, or that firm, dense, gray substance, which seems to form the groundwork of the membrane in most regions, but which is perhaps represented by the fibrous system in some other points. We must, however, deny the analogy or identity of the papillæ and the villosities; and we have no hesitation in saying, that neither the one nor the other are essential or necessary to a mucous membrane. We agree with Bichat in admitting it as an anatomical fact, that papillæ are met with in some parts where the mucous membranes originate; but we cannot discover that these minute bodies are to the origins of the mucous surfaces, what the minute piles named villosities are to the intestinal mucous membrane. While, therefore, we do not admit, in this situation, the ampullæ of Lieberkuhn, or the erectile vessels of other authors, we do not see that much more information is communicated by naming them *foliola*, or comparing them to the flattened leaflets of the gramineous plants; or, as Rudolphi has done, to plates or minute scales which cover the whole internal surface of the intestine. Nothing, in truth, appears to us so certain, as that the structure of the mucous surface varies in every situation and in every organ; and it is only in particular regions that this structure is sufficiently marked to admit of examination. The mucous surface of the intestines is best examined by detaching, inverting, and inflating a portion of ilium. When this is immersed in pure water, the observer may perceive, by means of its refracting power, an infinity of minute prolongations, which are made to wave or move gently amidst the fluid; but even a very powerful magnifying glass does not render them so distinct as to determine whether they are round or flattened, whether they are solid or hollow, or whether they are obtuse or acuminated. In no other region are they seen so distinctly; and if this be all that it is possible to ascertain, we rather think that, unless more powerful means be discovered of aiding our observation, it will be long impossible to obtain any precise or positive knowledge regarding the minute structure of these membranes.

In certain points, where a communication is observed between the general mucous surface and the cavities or recesses of particular regions, anatomists have not demonstrated a mucous membrane, but have inferred its existence as a continuation of the general surface. In the tympanal cavity, to which the eustachian tube leads, the existence of a mucous or fibro-mucous membrane is rather presumed from analogy than proved by direct and unequivocal observation. We know that, where the biliary and pancreatic ducts enter the duodenum, and for a considerable space upwards, the interior appearance is that of a fine mucous membrane, provided with lacunæ and villosities; but we have no direct means of saying, at what point of the hepatic duct, or the smaller canals of which it is formed, this mucous membrane terminates. When we trace the tracheal membrane to the bronchial divisions, it is utterly impossible to recognise any arrangement either of papillæ, piles, or villosities; and nothing is perceived excepting a smooth, uniform surface, of a colour between gray, dun, and red or purple, which is moistened with a viscid semitransparent fluid, and which is as like the peritoneum as the intestinal mucous membrane. But the situation where the existence of the mucous system, though believed, is most uncertain, is in the interior of the vasa deferentia, and where they take their origin from the vasa efferentia of the testis. No evidence of a sensible nature can be obtained regarding the organization of these tubes; and whatever is stated concerning it, is the result of analogical inference.

Though these membranes have been named mucous, yet an erroneous notion would be communicated, if it were said that, in every region, the action of their surface were the same. It may not, perhaps, be easy to limit the signification of the term mucus; but it is certain that many parts of this surface never, in the healthy state, secrete this animal matter; and, in others, the membrane is almost always moistened with a different fluid. The mucous membrane of the palpebræ is never occupied with mucus in the healthy state, but is uniformly moistened with the tears; the membrane of the mouth and throat is moistened with the saliva; the urethra presents merely a peculiar moist fluid, which seems principally to exude from many minute vessels which open along its surface, or in the lacunæ. All those parts, in short, which are not in constant contact with foreign or secreted substances, seem to present no mucus in the healthy state; whereas the surfaces of the stomach, intestines, gall-bladder, and urinary bladder, are almost constantly covered with a quantity more or less considerable of this animal secretion.

The length to which this article has extended, must be our apology for omitting entirely many subjects on which it became us to bestow some attention. Several tissues which we ought to consider, the want of room,—not their want of interest or importance, compels us to pass over unnoticed. Neither the erectile, the glandular, the synovial, the medullary, nor the pilous systems, have yet occupied our attention. Of the serous, our author speaks not, unless in a pathological respect;—and this comes not within our present plan. The same may be said of the concluding part of the work, in which, under the name of accidental tissues, M. B. treats of the development of tubercles, scirrhus, cancer, and melanosis,—subjects to which an entire volume might be profitably devoted. In concluding thus hastily, therefore, we shall satisfy ourselves with a general reference on all these points to the work itself, in which the curiosity of our readers will be rewarded with much valuable and interesting information.

II.

1. *The Croonian Lecture. Microscopical Observations on the following Subjects—On the Discovery of Valves in the Branches of the Vas Breve, lying between the Villous and Muscular Coats of the Stomach. On the Structure of the Spleen.* By Sir EVERARD HOME, Bart. V. P. R. S.

[Read December 7th, 1820.]

2. *Versuche uber die Verrichtung der Milz und die geheimen Harn-Wege.* Von T. TIEDEMANN und L. GMELIN, Professoren in Heidelberg. pp. 119. 8vo. Heidelberg, 1820.

In concluding our account of the experiments of Tiedemann and Gmelin on Absorption, we stated that we were prevented, by want of room, from noticing some interesting observations and experiments on the Functions of the Spleen. The publication of the paper of Sir Everard Home, which has taken place since that time, has put us in mind of the promise which we then made of calling the attention of our readers to this obscure and perplexing question in physiology.

Two very important and difficult inquiries present themselves to the physiologist at his very outset in this investigation. *1st*, What is the nature of the minute structure of the spleen—in what peculiar manner are its vessels disposed—by what particular arrangement is it distinguished from other organs—and, in fine, among what order or system of tissues is it to be ranked? *2d*, What peculiar changes are induced on the blood which is conveyed through these vessels; and in what manner are these changes subservient or necessary to the healthy state of the living body?

The first is one of those subjects on which numberless conjectures have been combined with a few observations, in order to give something like a plausible statement. Yet the reputation of those who have observed, might appear a warrant in some degree for their fidelity and accuracy, did it not appear that the best of them even cannot be said to have been exempted from those causes of error which preconceived opinions never fail to foster. It is on this account that we cannot place much reliance on the microscopical observations of Lewenhoek, the descriptions of Malpighi, or even the minute and penetrating injections of Ruysch; and perhaps less inconvenience and misconception would beset any one who would determine to divest himself of every previous notion, to unlearn every thing which he had been taught, and to apply himself, with assiduity and patience, to the personal examination of the organ, than those who attempt, after a laborious collation of various opinions and authorities, to elicit something which might at once agree with all, and not be inconsistent with the probable state of the fact. We, in truth, can scarcely at present remember a more perplexing, and, we may add, discouraging task, than the examination which we at one period undertook of the statements which are found recorded by these sedulous ancients of the objects which each had respectively perceived, and of the discoveries which each imagined he had made.

We shall therefore hold ourselves perfectly excused in waving entirely almost any reference to the labours of those anatomists whom we have mentioned, while we call the attention of our readers to the part of the inquiry most essential to the subject in hand; and, at the same time, submit to their consideration the result of Sir E. Home's labours.

After all the examination and injection which has been tried with this organ, the great point which is doubtful, and on which, perhaps, depends the solution of the problem of its function, is, whether there be a peculiar or proper substance of which the spleen is composed; or if it be simply a minute and infinite interlacement of arteries, veins, and lymphatics? Is there any tissue, or peculiar animal substance, which characterizes the spleen, and by which it is to be distinguished from every other organ? It is obvious that, in this difficulty, we cannot be aided by the vague comparisons which have been made to the structure of a sponge, or the uncertain descriptions which have been given of its cellular nature; nor is it possible to place greater faith in the *acini*, which Malpighi imagined he could recognise in their cells. The author who has, in these latter days, investigated this point with the greatest assiduity and attention, is Heusinger, who found certain whitish bodies, occasionally small, occasionally dilated, which, when air is impelled into the spleen by any venous branch, disappear, while the part in which they were found becomes pellucid, and many membranous parietes may be recognised. If, again, a small incision be made in the part, these membranous parietes disappear, and the globular whitish bodies are again visible. This phenomenon, together with the results of injections either by the arteries or veins, but especially the latter, lead this author to infer, that these small membranous bodies are vesicles or minute glands, which are abundantly supplied with blood-vessels,—which are liable to occasional dilatation in various degrees,—and which, in short, when filled, would, by mutual compression, assume the hexagonal figure. The general accuracy of these observations is admitted by Dr Hopfengaertner, a very intelligent young physician of Tubingen, who made the anatomical structure of the spleen the subject of a very excellent inaugural dissertation. But Heusinger, he thinks, was misled in considering these bodies separate glands; for the globular and separate figure is found, according to Dr H., only at the surface of the spleens but, in the interior, it is found to pass into cylindrical turning; or convolutions (*gyri*). We may further notice, that the experiments of Dr Hopfengaertner induce him to conclude, that the great mass of the spleen consists of what he names the proper substance, which is very soft and fluid, but of the minute nature of which we cannot discover that he otherwise speaks very distinctly; that it may be injected both by arteries and veins, and partly by the lymphatics; but that the fluid part only of the injected matter can enter this, unless it be forcibly ruptured; and that nowhere in the spleen can the direct passage of minute arteries into venous *radiculæ* be demonstrated. Such are the most recent, and, perhaps, the most certain and credible statements concerning the existence of a peculiar splenic tissue. But although we have almost as much confidence in the accuracy of both these observers as it is possible for us to have in our own personal observations, yet we must admit our utter inability to derive from them any information whatever regarding the uses of the organ.

Although it be impossible to deny that certain whitish bodies, evidently different from blood-vessels, are observed in the recent section of the splenic substance, yet we find that all do not consider these bodies of the same nature; and that, in short, this peculiar splenic parenchyma, or tissue, is not admitted by several observers of no ordinary authority. According to Sir E. Home, these whitish bodies are not of an organic nature, but are merely globules of lymph and mucus, contained in the cells which are found in the organ only, when the process of chymification is either going on, or has not been long finished.

"Wednesday, August 23, 1820, at 12 o'clock, a healthy, large spleen, taken from a man 28 years of age, was cut into eight transverse slices, nearly of the same thickness. Four of these were put into one flat dish, and four into another; both of these were filled with distilled water; no colouring matter was given out, although the surfaces had all a red colour. The cells were unusually distinct, and had a degree of uniformity in their appearance. On examining the cells under water with a common lens, they appeared full; on turning them over in the water, something colourless fell out, carrying no colouring matter along with it. The same thing happened on turning up the opposite side."

This something colourless proved to be lymph-globules. On the following day (24th), when these cells were examined by a lens, those of the upper surface appeared hollow and empty; but those below appeared full of a mucus soaked in water, and a film was spread over the surface of several of them. The two subsequent days (25th and 26th), the cells of both surfaces were filled with flocculent mucus, and appeared latterly to swell, and rise above the surface. After this they became flat, till the 29th, when a light coloured point was observed in the centre of each; and no material change seems to have taken place for several days, unless those which arose from the decomposition of the portions employed for examination. On the 8th September (sixteen days from the time when the sections were made), the cells, which till that time had been very distinct, and were still visible on the inferior surface, had disappeared entirely from the upper one; and four days after, on the 12th September, every thing was removed by the putrefactive and washing process, and nothing was to be seen but a uniform mass of vascular branches. We may notice, that the water was changed daily.

"August 29th, same year. The spleen of a woman who had taken little food for some time,—hardly more than one-third the size of the other,—contained no cells, and consequently no corpuscules; was treated in the same manner, and the changes it underwent were the same."

"The spleen," concludes Sir Everard, "from this account, consists of blood-vessels, between which there is no cellular membrane; and the interstices are filled with serum, and the colouring matter of the blood from the lateral orifices in the veins, when these vessels are in a distended state; which serum is afterwards removed by the numberless absorbents belonging to the organ, and carried into the thoracic duct by a very large absorbent trunk.

"That all the apparent fibres are vascular, is proved by the representation in Plate III. fig. 1., in which they are minutely injected, and the injection is carried into the cells, and moulded into their form. The lymph globules carry along with them, into the interstices, carbonic acid gas, and the mucus, soluble in water, in great abundance; but no blood globules, since none are formed in the cells. As soon as the lymph is at rest, the carbonic acid gas being let loose, forms the cells that surround the lymph globules, the sides of which are held together by the mucus, putting on the appearance of corpuscles without colour, and are thus mistaken for glands. The gas is absorbed by the blood in the arteries and veins.

"The spleen, from this mechanism, appears to be a reservoir for the superabundant serum, lymph globules, soluble mucus, and colouring matter, carried into the circulation immediately after the process of digestion is completed."

To prove more certainly this vascular nature of the splenic structure, our author gives, in his eighth engraving, a very distinct, and, we dare say, accurate representation of a section, in which nothing can be recognised but a minute and infinite interlacement of vessels. This had been taken from a transverse section of the spleen of a boy of ten years, which had been kept in water forty-eight days. During this time, fresh water was pumped every second day on it, the mucous and colouring matter were entirely dissolved and discharged, the globular substance was washed out, and the arteries, to their most minute branches, became clear and distinct.

In drawing his inferences from these successive changes and appearances, we acknowledge our incapacity to discover what Sir E. Home makes of the cells themselves. He undoubtedly succeeds, so far as we can judge, in showing, that what they contain is lymph and mucus, or at least a fluid or semifluid, which is not organic; but this does not explain why these should appear to be contained in spaces or interstices of a cellular appearance and a globular figure. Suppose we do admit, for the sake of argument, that this something colourless was lymph and mucus, still the question recurs, Why should these substances distend or dilate these interstices or spaces, so as to give the cellular appearance?—and particularly, why should the individual parts in which the arterial branches terminate, be of this semblance and configuration.[*]

On the structure of this organ, an opinion, more palpable and definite in its nature, is given by M. Beclard, in the work to which we devoted the preceding article. This author refers it to what he has denominated, after Dupuytren and Richerand, the erectile tissue, a peculiar arrangement of arteries and veins which is found in the spongy texture of the corpus cavernosum, in that of the urethra, the clitoris, and the female nipple. It is somewhat unfortunate that the researches of anatomists on this erectile tissue have been restricted almost solely to the cavernous body of the penis; and it is rather by analogy, than very direct proof, that the similarity of structure is maintained.

The cavernous body was long supposed to be a part of a spongy nature, or consisting of innumerable cells separated by plates and fibres, which, at the moment of erection, were distended with blood poured from the arteries, and which was afterwards removed by some absorbing power of the veins. This opinion, which was that of Haller, and many subsequent anatomists, even Bichat himself, was derived apparently from the facility with which the blood so deposited escapes, not, as it was believed, from divided vessels, but from open areolæ. Modern researches, however, have shown this to be an erroneous opinion. Cuvier and Ribes in France, Mascagni, Paul Farnese, Moreschi in Italy, and Tiedemann in Germany, have shown that there were no cells, or spongiform structure, in the erectile tissue of the corpus cavernosum. If the arteries, on the one hand, be injected, they are found to terminate in very fine ramifications, the disposition of which is entirely the same as in other parts; and if, on the other hand, the veins be injected, it is easy to perceive the two following circumstances:—1*st*, that they are much dilated at their origin; that is, that the venous *radiculæ* are really more dilated than might be anticipated from the other characters of these vessels; 2*d*, that the vascular dilatations to which they are accessory, form very numerous anastomoses, precisely as the capillary system of which they constitute a part. The effect of this arrangement is, to give these vessels the appearance of being penetrated with sieve-like openings, which makes them resemble areolæ, or meshes mutually communicating. As the whole difference, therefore, between the capillary vessels of this and other parts consists in the venous *radiculæ* being developed and dilated in a peculiar manner M. Beclard concludes, that the erectile tissue of the cavernous body consists simply of minute arteries and dilatable veins interwoven in the manner of capillary nets.

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[*] Plate III. fig. 1. p. 43.

The spleen, M. B. thinks, may be said to resemble the cavernous body, both in structure and in phenomena; and he considers it as at once consisting of erectile tissue, and the seat of a species of erection more or less similar to that of the cavernous body. This viscus, he argues, presents an actual motion of expansion and contraction; and he adduces the three following circumstances under which this takes place. 1*st*, In experiments; when in a living animal, the course of the blood in the splenic vein is arrested, the spleen swells, but returns to its former dimensions as soon as the circulation is restored. 2*d*, In diseases; the paroxysms of intermittent fever are accompanied with an obvious enlargement of this organ, which subsides as soon as the paroxysm is over. 3*d*, It appears that the same phenomenon takes place during digestion. These reflections are certainly of considerable importance in showing, that the disposition of the splenic vessels may be of the same nature as that of the other erectile organs; and the lateral openings of the veins, which are noticed by Sir E. Home, are a strong confirmation of the correctness of the views which Beclard gives of the dilatation and frequent inosculation of the venous *radiculæ*; but it would be very desirable to examine it with the same care, and in the same manner in which this arrangement has been investigated in other parts, and in this manner to render the organization of the spleen as evident and certain as the nature of the subject will admit.

We now proceed to notice the opinions which Professors Tiedemann and Gmelin have lately published regarding the use of this organ. Of the sixteen experiments, which we formerly mentioned these physiologists had performed and repeated in various ways, the object of the four last, besides the illustration of the process of absorption in general, was, in a more particular manner, to elucidate the actions and purposes of the spleen; and the conclusions to which our authors have come, as stated by themselves, are as follow.

1st, The spleen is an organ closely connected with the lymphatic system. *

2d, In it a coagulating fluid is secreted from the arterial blood, is taken up by the absorbents, and carried into the thoracic duct; and,

3d, This secreted fluid, when poured into the thoracic duct, is intended to make the chyle resemble the mass of the blood.

I. That the spleen is intimately connected with the lymphatic system, may be inferred, according to our authors, from the circumstance of its being restricted to the four superior classes of animals; viz. the mammiferous animals, the birds, the amphibious class, and the fishes;—in which alone anatomical examinations have been able hitherto to prove the existence of the absorbent system. The size of the spleen, in the animals of these different classes, bears a certain proportion to the size of the body, and the degree of development and perfection of the absorbent system. In the mammiferous animals, which possess the greatest number of lymphatic glands, it is larger than in birds, in amphibia, or in fishes; in which, as the absorbent glands are either very few or entirely wanting, the absorbent system must be deemed less perfect and less fully developed.

The spleen is distinguished by possessing an extraordinary number of lymphatic vessels, which has been acknowledged by all the anatomists who have closely examined the absorbent system; particularly by Ruysch, Mascagni, Cruikshank, Hewson, and others. Some years ago Home asserted, very correctly, that the spleen had larger and more numerous absorbents than any other organ; and, with this opinion, the experiments of our authors are perfectly in unison.

The spleen has, even in its construction, a great resemblance to the lymphatic absorbent glands, inasmuch as, like these, it is formed by an intermixture of arteries, veins, and lymphatics, and has no other excretory ducts than the lymphatics themselves, which in it supply the place of such a duct. Ruysch * expressed a similar opinion as to the spleen, to which, as to the thyroid and renal glands, he applied the name of *Glandulæ Sanguineæ;* and ascribed to them, as well as to the lymphatic glands, the function of secreting a fluid from the arterial blood, to mix with and perfect the lymph.

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* We may here state, once for all, that MM. T. and G. uniformly employ the term absorbent (*saugader*), which we, to avoid any idea of function, have rendered merely lymphatic. The same remark is applicable to the lymphatic glands, which they uniformly call absorbent glands (*saugader-drusen.*)

Hewson also † regarded the lymphatic glands, the spleen and the thymus, as organs which served to make the chyle and the lymph resemble one another, by mixing them with a fluid secreted from arterial blood, and which assisted in the formation of the globules of blood.

A more conclusive proof of the intimate relation between the spleen and the absorbent system, is derived by our authors from what they ascertained in the spleen of the turtle, in which, as in many of the amphibious animals, this organ is connected, not with the stomach, but with the intestinal canal. When the arteries and veins of this tube were filled with coloured wax, and the lacteals with quicksilver, all the absorbents of the small intestines were seen passing into the spleen; in which they formed inosculating nets, by being interwoven with the arteries and veins, and then continued their course in larger branches, like the carrying vessels of the absorbent glands, to the thoracic duct. Our authors therefore conclude, that the spleen of the turtle is entirely like a mesenteric gland, and probably has also the same functions.

II. The greatest peculiarity in the doctrines of our authors, is the opinion, that a fluid is secreted from the arterial blood in the spleen, taken up by the lymphatics, and conveyed into the thoracic duct. In confirmation of this, they adduce a phenomenon which they witnessed in the lymphatics of the spleen of horses, viz. the presence of a reddish fluid, which showed itself essentially different from the chyle of the lacteals, and also from the lymph of the absorbents of all other organs examined by them. Such a reddish coagulable lymph, they remark, was also observed by Hewson in the absorbents of the spleen, when he made his experiments. This author, it may be remembered, having extirpated the spleen of a living dog, after securing the blood-vessels, found the absorbents on the surface of the spleen filled with a reddish fluid, which, on being taken from one of the absorbents, and exposed to the air, immediately coagulated. In a bullock recently killed, he put a ligature on the splenic blood-vessels and lymphatics. The latter soon appeared filled with a reddish fluid, which resembled a mixture of red wine with water, and coagulated rapidly when taken from the vessels. Hewson repeated this experiment several times with similar results; and concluded from it, that the spleen was an organ in which the red globules of blood were formed, taken up by the absorbents, and poured into the thoracic duct.

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* Observat. Anat. chirurgic. Centuria. Obs. 51. p. 48. Dubitandum non est, quin (glandulæ conglobatæ) exaltationi et ulteriori perfectioni lymphæ inserviant, aut succum peculiarem ex arterioso sanguine intra se conficiant, quam lymphæ impertiunt. Idem sentiendum de glandulis sanguineis, quæ sanguinis exaltationi et perfectioni inserviunt.

† De Methodo, qua rubræ sanguinis particulæ formantur; Hewson Opus posthumum. Lugd. Bat. 1785. 8. Cap. 5. p. 94.

This opinion is rendered probable, they remark, if we advert to the relation which subsists between the spleen and its arteries. This organ, which, according to so many experiments, has no excretory channel, receives, in proportion to its size, a very large artery, which exceeds even the coronary of the stomach, or the hepatic artery; and which may be compared, in its calibre, to the arteries of the kidneys, or to those of an organ in which a copious secretion takes place. As the spleen receives a greater quantity of arterial blood than can be supposed requisite to its nutrition, and returns a proportional quantity of venous blood into the portal vein, they infer, that the organ must be the seat of some change, by which the arterial is converted into venous blood. From the analogy of other organs, they conclude, that so much blood is not employed merely for the nourishment of so small an organ. This arrangement they explain by the inference, that there is secreted from the arterial blood of the splenic artery, a species of coagulable lymph of a reddish colour, which is absorbed by the lymphatics, and conveyed into the thoracic duct. This lymph, they remark, was seen not only by them, but by Hewson, in his experiments on living animals; and they conclude, that the formation of this fluid is the only means by which it is possible to account for the use of the great quantity of arterial blood which flows into the spleen.

It may naturally be asked, by what means the coagulable lymph, which is secreted from the arterial blood of the splenic artery, passes into the absorbents? And to this they reply—either there are, in the substance of this organ, particular gland-like bodies, and small spaces or cells, which several anatomists say they have remarked, in which the fluid is secreted, and taken up by the absorbents; or the finest branches of the arteries in the spleen pass immediately into the absorbents, and by this means some parts of the arterial blood reach the absorbents.

On the existence of cells, although the usual authorities are quoted, yet they place little reliance; and, in reference to what Sir E. Home formerly observed in the spleen of the ass, and considered as cells at the thick end and the border of the organ, they assert, that their experiment on the horse led them to regard these appearances as absorbents, which, after a full meal, are always filled with a reddish lymph.

Whatever may be the result of actual inspection, however, our authors remark, there is no doubt that fine fluids or air pass with great facility from the splenic artery into the absorbents. Besides the trials of this transit which were made long ago by Nuck, Bartholin, Cowper, Morgagni and Monro, they adduce the more recent experiments of C. H. Schmidt, who obtained the same results in operating on sheep and oxen. MM. T. and G. themselves also found, that quicksilver, water or air, and fluids, in which cinnabar or chrome yellow were suspended, were made to pass through the splenic artery of horses, oxen, and calves recently killed, not only into the veins, but also into the lymphatics, and without producing any rupture of vessels which they could detect. From all these facts they infer, that a connexion subsists between the splenic arteries and absorbents, either directly or indirectly, by means of cells.

This secretion, they further add, is under the influence of the nervous system of the ganglions.

The fact of the spleen being larger with an empty stomach, and less with a full one, which has been remarked by Lieutaud, Malacarne, Moreschi and others, though doubted by some physiologists, may be explained, according to the views of MM. Tiedemann and Gmelin, in this manner. The secretion of this reddish coagulating lymph from the arterial blood, takes place from the nerves being excited, particularly during digestion; and consequently, by the plentiful secretion, the course of the blood is carried forward in the spleen, which by this means is reduced in size. Even the observation of Sir E. Home, that the supposed cells of the spleen are filled with a liquid, particularly during the time of digestion, and appear, on the contrary, empty at other times, completely accords, they think, with their statement.

III. The third point which our authors have advanced, that this secreted coagulable lymph, when conveyed into the thoracic duct, is intended to render the chyle similar to the blood, requires naturally to be supported by at least two circumstances;—1*st*, that this change actually takes place;—in other words, that the chyle of the thoracic duct differs from the chyle of the mesenteric vessels, by a closer resemblance to perfect blood; 2*d*, that, when this coagulable matter was by any means prevented from reaching the thoracic duct, this change did not take place. We shall see in what manner our authors establish these two circumstances.

They begin by showing, from the observations of many chemists and physiologists, that the chyle which is found in the intestinal chyliferous vessels, before passing through the mesenteric glands, is very different from that which is contained in the thoracic duct, or even in the chyliferous vessels above the mesenteric glands. They quote the authority of Reuss and Emmert, Vauquelin, Brande, Marcet and others, to show that the chyle taken from the thoracic duct has a reddish colour; that, when exposed to the air, it soon coagulates and separates into two parts, the serum and the crassamentum. Reuss and Emmert, who once took chyle from the absorbents of the intestinal canal of a horse, before passing through the mesenteric glands, observed that it had not the least red, but a white colour, and that it coagulated much more slowly and imperfectly than the chyle of the thoracic duct. Our authors have repeatedly observed the same thing in the chyle taken from the absorbents of the intestinal canal, before they had passed through the mesenteric glands. The chyle of these vessels, which was always white, and had no tinge of red, either underwent no coagulation, or did so very feebly and slowly. But that which they observed in the absorbents which had passed out of the mesenteric glands was reddish, and coagulated more easily and more firmly than the other. The chyle in the thoracic duct, above the entrance of the splenic absorbents, and after being mixed with the reddish coagulable lymph, appeared reddest, and coagulated very rapidly. The gradual transformation of chyle into blood, they argue, is therefore a consequence of its passage through the mesenteric glands, and of the mixture of the reddish coagulable lymph supplied by the absorbents of the spleen.

The properties of the spleen in the fœtus, and in old age, support this view. In the fœtus, the spleen is well known to be very small; and no chyle is formed in the intestinal canal in this stage of existence; the spleen, accordingly, intended to assimilate the alimentary matter derived from the intestinal canal, is of no importance. After birth, when the formation of chyle begins, this organ shows itself full of blood, and increases in size rapidly. In old persons, they have commonly found the spleen diminished; it appears, therefore, like the lymphatic glands, to decrease in size with age.

To establish the second circumstance, it was requisite to prevent the coagulable lymph either from being formed, or from being conveyed to the thoracic duct. This was most easily accomplished, by extirpating the spleen from an animal, and seeing whether, in truth, this change did or did not take place, or whether the want of the splenic coagulable fluid had any influence on the properties of the chyle in the thoracic duct. By an incision, therefore, under the false ribs, our experimentalists extracted the spleen, and, having tied the splenic blood-vessels, separated the organ from its other connexions. A portion of the great omentum, with several folds of intestine which had been protruded during inspiration, being replaced in the abdominal cavity, the edges of the wound were brought together and united by suture.

On the day of the operation, and also on the following day, the animal was melancholy, lay on his left side, eat and drank nothing, passed his urine only once, and had no intestinal evacuation. On the third day, the edges of the wound were much swelled and inflamed; the heat of the body was increased, and the nose dry. The dog left his couch occasionally, took some milk and moistened bread, and passed his urine once. On the fourth day, when matter was formed at the edges of the wound, the animal eat and drank a little, passed his urine occasionally, and some hard dark-brown excrement for the first time. On the fifth day, the secretion of matter being increased, the dog took some nourishment, passed his urine, but no excrement. On the sixth day, he was again tolerably cheerful, and ran about the room; florid granulations formed on the wound; and hard brown excrement was voided. On the following day, the granulations continued to form, the ligatures fell off, and the wound began to heal. The dog recovered his cheerfulness, eat and drank as usual; the quantity of urine was not increased, and the excrement had its proper qualities. On the eighteenth day after the operation, the wound was perfectly united and cicatrized; and the animal appeared, except being a little emaciated, quite as well as before the operation. He took no more food than formerly, passed his urine as usual, and the excrement of the rectum was of a proper consistency and brown colour.

In order to examine the chyle in the thoracic duct, it was requisite to kill the dog. At half-past 12 o'clock at noon, two drachms of prussiat of potass were given him in a mixture of bread and milk,—a combination which he devoured voraciously; and the urine, an hour after, showed, by adding muriat of iron, the presence of the salt. At 4 o'clock, the animal was killed by strangulation. The chest was immediately opened, and the thoracic duct tied. When it was pierced, it discharged a clear white-like thin fluid chyle, which was received in a vessel. As it cooled, a very small portion of crassamentum formed itself, which swam in the abundant serum, and first acquired, after being long exposed to the action of the air, a pale red colour.

Our authors never observed, in their prior experiments, so small a quantity of crassamentum. On pouring a few drops of muriate of iron into the serum of the chyle, a pale greenish-blue colour arose, which might be occasioned by the presence of the prussiat of potass.

On opening the abdomen, the omentum was found adhering to the muscular peritoneum, where the wound was made, by which the spleen was extracted. The liver was full of blood, and appeared even to be somewhat enlarged. The gall-bladder was filled entirely with bile, which had the usual brownish-green colour, and was of the same consistency, and as bitter as it commonly is. Some prussiat of potass was detected in the bile, The serum of the blood taken from the portal vein was coloured blue, on the addition of muriat of iron.

The stomach contained a white sort of pap of bread and milk. In the yellow gall-coloured contents of the small intestines, they perceived several flakes of chyle. Prussiat of potass was found in the stomach, and in the whole intestinal canal.

On examining the lymphatic glands of the abdomen, the mesenteric glands were found unusually large, and full of blood. The absorbent glands in the region of the lumbar vertebræ and the pelvis, were evidently increased in size. Finally, it deserves to be mentioned, that in the uterine extremity of the fallopian tubes, five embryos were found, which might be about four or five weeks old.

On comparing this case with the experiments made by others on the extraction of the spleen, Messrs Tiedemann and Gmelin give the following as the results.

" 1. The increased secretion of the urine observed by Malpighi, Bohn, Brunner, Vallisneri, Heister, Ortlob, Deisch, C. A. Mayer, * and Schmidt, † after the extraction of the spleen, is not essentially derived from it, as it did not take place in our experiment.

" 2. The violent appetite remarked by Malpighi, Düpüytren, and others, is also not a necessary consequence, as it did not exist in our dog.

" 3. Mead and Mayer assert, that animals from which they had extracted the spleen digested ill. We, however, did not observe any appearance of enfeebled digestion.

" 4. A cat, from which Mayer had extracted the spleen, always passed fluid excrement. The excrement, in our experiment, was always hard.

" 5. Ortlob says, he found the gall not so yellow as usual, and watery. Bohn, Vallisneri, Pozzi, Buonazzuoli, Morgagni, perceived

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* Salzburgen Medizinisch-chirurg. Zeitung. 1815. B. 3. § 189.

† Commentatio de Pathologia lienis. Gotting. 1816. P. 49.

it to be very bitter, and dark coloured. We have not discovered any difference in the gall, either as to its quantity, colour, or bitterness.

" 6. Mayer mentions, that the mesenteric glands, and the absorbent glands of the abdomen, of the chest, and of the neck, in a cat, were much enlarged. In our experiment, we perceived at least an enlargement of the absorbent glands of the abdomen.

" 7. The properties of the chyle in the thoracic duct, have not been attended to by any experimentalist. As it appeared so uncommonly thinly-fluid and white, and contained so small a quantity of crassamentum or coagulable matter in our experiments, it implies a confirmation of our opinion, that, in the spleen, a red coagulable lymph is secreted from the arterial blood, and conducted into the thoracic duct, to assist in converting the chyle into blood. Its watery nature, and the appearance of so small a quantity of crassamentum, must be regarded as the consequence of taking away the spleen.

" 8. Our experiment agrees with the results obtained by other physiologists who have extracted the spleen, in so far as they have shown that it is an organ not essential to the continuance of life. The cause of this is, probably, that the other lymphatic *(absorbent)* glands, which perform the same functions as the spleen, may supply its place by an increased activity. Mayer, as well as we, saw the lymphatic glands of the mesentery and of the abdomen enlarged,—an event which supports this opinion; and probably an increased secretion of coagulable lymph took place in them."

They conclude by observing, that pathology furnishes several confirmations of their opinion; and they adduce the instances of scrofula, diseases of the chylopoietic viscera in general, intermittent fever, and abdominal dropsy.

In stating the preceding details of the researches and inferences of our authors, we have refrained from expressing any sentiment of our own. The inquiry is at once so intricate, and the precise facts are so difficult to ascertain, and so liable to various causes of error, that it is not easy to employ them in analytical examination, or for the purpose of induction; and we think it best to place the information before our readers, as nearly as possible in the state in which we obtain it. Every one will be thus enabled to estimate, in some degree, the value of what is ascertained, the consistence of the individual parts with each other, and the merit of the whole; while it may enable future inquirers to distinguish the ambiguous points, and suggest the means either of ascertaining, or proving them to be entirely hypothetical and fallacious.

It is obvious, however, that the doctrine of the German physiologists has the advantage of the other two in the perfection of its parts, and in the elaborate and finished manner in which it has been presented to the world. Neither Sir Everard Home states why the lymph-globules, and mucus should be conveyed into the spleen, during or towards the close of the process of chylification, or for what purpose they are made to perform this route; nor does M. Beclard show what is the use or object of the erectile action of the spleen; or in what manner, when it does occur, it contributes to any purpose in the economy. These objections do not apply to the notions of Tiedemann and Gmelin, who not only inform us that their reddish coagulable lymph is prepared in the spleen, but that it is further employed in the elaboration and perfection of the chyle, previous to its union with the blood; and that, without the influence of this agent, the chyle is defective in some of its more prominent and necessary properties. It is impossible, indeed, in taking leave of this complicated subject, to refrain from admiring the great ingenuity displayed in the inferences which our authors draw from the facts and observations of their predecessors, and the happy manner in which they render them conclusive in relation to their own doctrines,—as well as the precision of their reasonings, and the application of their experiment, in support of the third proposition. The only possible objection which may be urged against this, is the individual case, which is perhaps not sufficiently strong to remove the doubts, and satisfy the curiosity of all. And if, on repeating this experiment, the results were found to be uniform, it would undoubtedly require a great deal more observation and reasoning than we have yet seen, or know of, to overthrow, or even weaken, the doctrine which the German Professors have advanced.

In the concluding pages of their memoir, MM. Tiedemann and Gmelin give the results of their experiments, as they apply to the question of the existence of secret urinary passages. In the course of their researches on the function of absorption, they had occasion to remark the influence of three classes of substances on the properties either of the blood in general, or of the urine in particular. For the sake of brevity, we give a tabular view of these results.

I. *Odorous Substances employed.*

Spirit of turpentine found in the urine of the dog and horse.

Camphor,	found in the blood of the mesenteric and portal veins.	Not found in the urine, but communicated to the air expired from the lungs.
Musk,		
Dippel's oil,		
Spirit of wine,		
Garlic,		

II. *Colouring Matters.*

Rhubarb—urine of dog	blood of portal veins—not in chyle.
Indigo—urine of horse	

Gamboge—urine of horse.

Litmus tincture, Cochineal, Alkanet, Sap-green,	Did not change the colour of the urine, nor were they recognised in it by chemical tests;—appear to be destroyed in the stomach and intestines.

III. *Saline and Metallic Substances.*

Prussiat of potass Sulphuro-prussiat of potass	found in the urine and chyle of the dog.
Iron, Baryta,	found in urine and blood of portal veins of the horse—not in the chyle.
Lead, Quicksilver,	not found in the urine.

The conclusions which our authors deduce from these facts, are of two kinds,—one relating to the accuracy of former researches and to their application, the other relating entirely to their own researches.

They consider the inference which Dr Erasmus Darwin drew from his observation of the effects of nitre on the blood and urine of his patient as unwarranted, and the means which he employed to demonstrate the presence of the nitre, as too vague and inaccurate. In reference to the experiments of Drs Wollaston and Marcet and Mr Brande with the prussiat of potass, in which the salt was recognised in the urine, but not in the serum of the blood, or that obtained by vesication;—they remark, that as the prussiat of potass given was mingled with the whole mass of the blood, the quantity in individual portions of this was too small of admit of its being detected; and that this salt, like many other substances which pass into the circulating fluid, is very speedily discharged by the excreting organs. According to the experiments of Home, Magendie and Mayer, therefore, which have been confirmed by our authors, the opinion entertained by these eminent chemists is totally without proof or foundation.

The opinion of Darwin, Thilow, and some other physiologists who sought to explain these phenomena by a retrograde motion of the fluids in the absorbents, they consider as entirely irrational,—as contradicted anatomically by the existence of the valves, and physiologically by the results of their eleventh experiment. In this they found the urine of a horse, to which they had given a considerable quantity of the tincture of indigo, of an intense greenish-blue colour; and they recognised the same tinge in the ureters, pelvis, and infundibula of the kidneys. If this substance, they observe, had been removed by the lymphatics of the stomach and intestines, and had been conveyed by a retrograde motion of the lymphatics of the urinary organs into the infundibula of the kidneys, the absorbents must have contained a greenish-blue fluid, because a considerable quantity of the tincture was found in the stomach and intestines. This, however, was not the case; for the intestinal absorbents contained chyle not of a blue colour; and in those of the kidneys, bladder, and whole lumbar region, they found a clear transparent lymph of a faint yellow tinge, as is commonly observed.

MM. Tiedemann and Gmelin view, in the same light, nearly the opinion of G. R. Treviranus,[*] who had recourse to the cellular membrane of the stomach, intestinal canal, and urinary organs, to explain these rapid transferences of fluid. Though all the fluids contained in the stomach and intestinal canal were tinged either blue or yellow, yet the serum of the cellular membrane of the lumbar and renal regions gave no trace of any change.

Our authors therefore infer, that the supposed secret and direct communication between the stomach or intestines, and the urinary organs, is a mere fiction; and no method of explaining the phenomenon is left, but that, in such circumstances, the matters employed are carried not through the thoracic duct, but directly by the veins into the circulating fluid, whence they are deposited in the kidneys.

III.

Notes on the Medical Topography of the Interior of Ceylon, and on the Health of the Troops employed in the Kandyan Provinces, during the Years 1815, 1816, 1817, 1818, 1819, *and* 1820; *with brief Remarks on the prevailing Diseases.* By Henry Marshall, Surgeon to the Forces. 8vo. pp. 228, London, 1821.

This little work contains, in a very unassuming form, much important information, relative to the health of the troops who were lately employed by the British Government in subjugating and expelling from the kingdom of Kandy, a tyrant, whose monstrous cruelties seem to have rendered him totally unworthy to retain it.

The nature of the climate in the interior of Ceylon, and the obstacles and privations with which the troops had to contend, in the execution of this service, naturally entailed a large share of sickness and mortality, of the extent of which the Tables contained in Mr Marshall's work exhibit an excellent summary. This is a mode of concentrating professional observations, to which we have on all occasions shown a decided partiality; and we are glad to find that Mr Marshall has adopted a mode so well suited to his purpose.

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[*] Biologie, B. 4. s. 516.

After a short description of the face of the country, accompanied with meteorological observations and tables, our author favours us with some highly interesting remarks on the manners and habits of the natives, which represent this people as at an exceedingly low pitch of refinement and morality, destitute of any strong features of national character, and creatures of the most gross superstition.

In some of the thick, and almost impenetrable forests in the interior of the island, is to be found a race of people, totally distinct from the other inhabitants, and complete children of nature. These people are termed Veddahs, or Hunters; and although they all appear, according to our ideas, immeasurably removed from a state of civilization, yet there are two subdivisions of this savage race: "one class is called the Jungle, or Wild Veddah; the other is in some degree civilized.

"During the year 1817, a party of eight or ten of the latter class arrived in Kandy, bringing with them a portion of honey as a tribute to Government. They were each furnished with a peeled rod of six or seven feet long, which was used as a walking-stick. In stature they did not differ much from the ordinary natives. Their beards were uncut; the hair of the head was long, and hung in matted tufts over the face, as well as backwards over the shoulders. Their general appearance was savage and uncouth. The parts of generation were covered with a narrow strip of cloth, which was suspended from a string tied round the loins. The half-civilized Veddahs have a fixed residence; they cultivate a small quantity of Indian corn and natchenny; they associate a little with their Kandyan neighbours; and they acknowledge the authority of the petty officers appointed by Government. In all other respects, the habits of this class are not much different from those of the Jungle Veddahs."—"The Jungle Veddahs are said to be less in stature than the neighbouring inhabitants. They are extremely active. They permit the hair of the head to hang over their faces, and they do not shave. The parts of generation are covered with a strip of cloth, only a few inches wide. The cloth of some of the women is said to be larger than that of the men; but many women have no covering of any kind. A jungle Veddah rarely emerges from the forest which he inhabits. He carefully shuns intimate intercourse with the settled inhabitants. I am not aware that a wild Veddah has ever been seen by a European.

"Individuals of this class have no fixed residence: sometimes they pass the night on a tree. Occasionally, however, they construct temporary huts with branches of trees and long grass. Their furniture consists of one or two earthen pots, a calabash, and a small basket lined with leaves, in which they keep their honey. Each male Veddah in general possesses a bow and about six arrows. Dogs and buffaloes are the only animals domesticated by the Veddahs. The former they train to assist them in hunting; the latter are solely used for the purpose of enabling them to approach wild animals. The buffaloe is taught to move in whatever direction the Veddah wishes. By keeping close under cover of the buffaloe, the Veddah approximates his prey unperceived." pp. 34, 35.

"They have no knowledge of an all-powerful Supreme Being. Disease they believe to be always inflicted by evil spirits. When an individual of a family falls sick, the relations perform a number of ceremonies, with a view of averting the malign influence of the Yaku, the devil of the Veddahs. Dancing is a frequent means by which they endeavour to conciliate the favour of Yaku. The dancing ceremonies are generally conducted during night. They have no other musical instrument but tomtoms: these they make by stretching the skin of a guana over a portion of the rind of a gourd. As they believe that disease is invariably occasioned by the devil, no medicines are given to the sick. Indeed they are quite ignorant of the medical virtues of plants. To recover the sick, they trust entirely to the performance of ridiculous ceremonies, and making oblations to Yaku. By mummery of this kind they expect to avert the consequences of his evil intentions." p. 38.

The concluding chapter of this part of the work contains Notes on the prevailing diseases, and the practice of medicine amongst the Kandyans. Fever and dysentery are here, as in other tropical countries, the chief sources of mortality. The former is supposed to have been the principal cause of depopulating certain districts mentioned by our author, which, from the remains of magnificent tanks and religious edifices, are naturally concluded to have been much more populous at a former period than at present. It appears that the late King of Kandy was in the habit of transporting to these unhealthy spots such of the native chiefs as were hostile to his views, and thus availing himself of the insalubrity of the climate to get rid of his opponents.

On the subject of ulcers following promiscuous sexual intercourse, the opinions of the Kandyan doctors are interesting; and, as Mr Marshall observes in his Preface, "they do not differ very materially from the sentiments entertained of the venereal disease by a number of medical men of the present day in Europe." The Kandyans are subject to a wide-spreading ulceration of the skin, termed "*ara mauny wanny*;" and there is also a disease of the skin mentioned in the native medical writings, under the name of "*parangy lede.*" Whether these complaints are to be attributed to a syphilitic origin, does not distinctly appear; but our author has seen some cases of them treated successfully by the blue pill; and "in regard to the treatment of parangy, the Vederales are nearly unanimous. They all recommend the use of mercury, should other means fail in producing a cure. They generally, however, give their simple remedies a trial of two or three months before the administration of mercury is commenced." p. 45.

The following remarks on the different states of the pulse, exhibit, in a ludicrous point of view, the fanciful circumstances on which the Vederales, or Singhalese physicians, found their diagnostics.

"The Vederales affect to be particular in ascertaining the state of the pulse of their patients. When a Vederale feels the pulse, he commences the operation by seizing the four fingers of the right hand of the patient with his right hand, and pulls them a little: sometimes each finger is pulled separately. With the four fingers in the right hand of the Vederale, three fingers of the left hand are applied to the usual place of feeling the pulse. The pulsation felt by the index finger, is called *sem nadi* (the phlegm pulse); that by the middle finger, *pit nadi* (bile pulse); by the ring finger, *wate nadi* (wind pulse). The disease is said to originate from a combination, redundancy, or disproportion of wind and phlegm, when the pulse is felt beating strongly by the ring and middle finger. Should the pulse be felt full by all the three fingers, then the disease arises from a combination of phlegm, bile, and wind, and is called *sanipate* (a fatal disease). In cases of sudden sickness, where the wind pulse was originally full, and the bile pulse small, recovery is indicated by the rising of the bile pulse, while the wind pulse becomes less strong. A falling of the bile pulse, and a rising of the wind pulse, indicate a fatal termination of the disease.

"The pulse of both arms is always felt, and with an equal degree of attention to the requisite forms. In males, the pulse of the right arm is first felt, that of the left in females.

"The Vederales compare the wind pulse to the motion of an ant, slow and rather small. The phlegm pulse is compared to the motion of a caterpillar. The bile pulse, they say, is full, hard, and quick: it is compared to the galloping of a horse. An intermitting pulse is compared to the jumping motion of frogs. Death is indicated by a pulse which they compare to the motion of wind, and by the involuntary motions of the muscles of the extremities, which are supposed to resemble the dancing gait of the peacock.

"Should the pulse resemble the gait of an elephant, firm and slow, a recovery may be expected. The patient is in much danger when the pulse resembles the motion of a snake following a frog, undulating and quick. Death is said to be near at hand when the pulse resembles the jumping motion of a flea." pp. 50, 51.

In this chapter we have some curious extracts from a medical work of repute in the Singhalese language; the following specimen of which will show the absurd superstition in which our art is involved amongst the natives of this remote island.

"Symptoms connected with the messenger who requests the attendance of a Vederale upon a patient.

"If the messenger be a low cast man; if he be lame or maimed; if he has lost his nose by disease; if he has a turban on his head; if he has a stick or weapon in his hand; if he has red, black, or ragged clothing, or only a single cloth round his loins; if he speak ominous words, unfavourable to the state of the patient; if he rub his hands, or put them on his belly; if tears fall from his eyes; if his body has been rubbed with oil; if the messenger be a woman, or a hermaphrodite; if he be a stammerer, or deaf:—these are all sinister omens; and should the messenger have nothing good in his hands, they betoken a fatal termination to the disease.

"When the Vederale proceeds to visit a patient, it is auspicious for him to meet on the road a virgin, a cow, a conch-shell, a drum, curds, sweet-tasted fruit, a golden-coloured flower, a lighted bonfire, a river, a flag, or a red cloth; it is likewise favourable for him to be in good spirits, and for the sky to be cloudy, to see white rice (boiled), to meet a man of learning, or a meretricious woman, or fresh flesh-meat—to receive gratulatory words from those whom he meets: these are all encouraging circumstances, and are propitious both to the patient and the Vederale.

"On reaching the patient, the Vederale is to take some water in a leaf; and, after repeating a charm, he is to sprinkle the sick person with it: if, after being thus sprinkled, the patient touches his own foot, he has one year to live—his ankle, he has six months to live—his cheek, three months—his forehead, six weeks—eyebrows, nine months—throat, seven weeks—eyes, five days—nose, three days—tongue, one day." pp. 56, 57.

The second part of Mr Marshall's work, is more peculiarly devoted to the consideration of the health of the troops, which, as we would naturally suppose, appears to have been considerably influenced by the physical constitution and moral habits of the different descriptions of soldiers employed in the interior of Ceylon,—Europeans, Malays, Caffries, and Indians. The important information which this division of the work contains, is compressed into a space comparatively small, by the use of numerous well-constructed Tables and Returns. Of these we feel it impossible to give any useful abbreviation, and must content ourselves with recommending the original to our readers.

In the brief remarks on prevailing diseases, which constitute the third division of Mr Marshall's work, we have some appropriate observations on fever, inflammation of the liver, palsy, dysentery, tetanus, epidemic cholera, beriberi, and ulcers. The following account of the appearances on dissection, and a few remarks on the treatment of cholera, are the only extracts we can make room for from this part of the work.

" In cases that terminated rapidly, the blood-vessels of the membranes of the brain were generally found unusually turgid. The dura mater presented a greater number of bloody points than is commonly observed. The increased turgidity of the blood-vessels of the pia mater was still more remarkable than in the dura mater. When the former membrane was removed from the convolutions of the brain, it appeared at a little distance like a coagulum of blood. The plexus choroides and velum interpositum were likewise unusually vascular. In protracted cases, no very unusual turgescence of the blood-vessels was observable.

" *Thorax.*—The lungs were frequently found gorged with blood. The right side of the heart and the venous trunks were often unusually filled with blood: sometimes the heart was more flaccid than natural.

" *Abdomen.*—When cases ran a rapid course, the intestines, viewed in situ, appeared remarkably white and bloodless. In protracted cases they were frequently reddish. The villous coat was often particularly vascular. Some cases occurred where the vascularity was so great as to resemble a successful injection of the intestines with fine size coloured reddish brown. There was, however, no thickening of the coats of the intestines.

" The stomach and intestines generally contained more or less of a turbid watery congee-like substance. Sometimes flakes of a tenacious mucus were found floating in the fluid. The villous coat was, for the most part, covered with a thick layer of adhesive mucus.

" *Liver.*—This organ did not present any morbid appearance.

" The gall-bladder always contained more or less bile. In quality, this secretion was found possessing all the different shades of colour and consistency, between pale and watery to black and pitchy.

" *Treatment.*—In a great many cases it seemed evident that the nervous and vascular system suffered under some powerful and deleterious influence, even from the earliest appearance of the disease. The pathology of cholera being so very obscure, it was often a point of great difficulty to decide upon the means of cure. The more evident indications were, to rouse the vital energies, by endeavouring to restore the strength of the circulation, and to recall heat to the system. For this purpose, draughts composed of various stimulants, such as ether, ammonia, peppermint water, tincture of opium, spirits, &c. were exhibited and repeated, according to the urgency of the symptoms. In a number of cases calomel in scruple doses was given, and in some this quantity was repeated every second hour."—" The appearances on dissection, in many cases, seemed to indicate that there was an undue accumulation of blood in certain portions of the vascular system, more particularly in the large blood-vessels. For the purpose of assisting to equalize the circulation, it was, in some cases, deemed advisable to open a vein.* The abstraction of blood appeared to be useful in a number of those cases which were admitted into hospital before the action of the heart and arteries was greatly impaired. Cases of this kind were, however, almost exclusively confined to the Europeans. Among the blacks, venesection rarely appeared to be useful. No advantage was gained by bleeding in any class of patients when the skin had become cold and clammy, and the pulse weak. Under these circumstances it was, in general, difficult to extract blood in any quantity; but even when the operation was successful, the consequences very rarely tended to recommend the practice." pp. 196—199.

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* " The practice of blood-letting in cholera was, I believe, first adopted by Dr Johnson, and recommended by him in his valuable work on Tropical Diseases."

Having thus enumerated the contents of this little volume, we have only to observe, that, from its perusal, we have formed a very favourable opinion of our author's industry and talent for medical observation. The plan which Mr Marshall has adopted has naturally led, in some instances, to an abruptness of style with which we were occasionally disposed to quarrel, until we recollected that the work was only to be considered as a collection of *notes*, in which point of view it is altogether unexceptionable.

IV.

1. *Experiments and Remarks, illustrating the Influence of the Eighth Pair of Nerves over the Organs of Respiration and Digestion.* By S. D. BROUGHTON, Member of the Royal College of Surgeons, one of the Surgeons to the St George's and St James's Dispensary, &c. (*Journal of the Royal Institution*, No. XX.)
2. *Observations on the Effect of dividing the Eighth Pair of Nerves. Communicated in a Letter to the Editor of the Quarterly Journal of the Royal Institution. By* CHARLES HASTINGS, M.D., Physician to the Worcester Infirmary, &c. (No. XXI.)
3. *Reply to some further Observations and Experiments relative to the Eighth Pair of Nerves, by Dr* HASTINGS, *Physician to the Worcester Infirmary. By* S. D. BROUGHTON, Surgeon, &c. (*In a Letter to the Editor of the Journal of the Royal Institution*, No. XXII.)
4. *Some Additional Facts relating to the Division of the Eighth Pair of Nerves, communicated in a letter to the Editor of the Journal of the Royal Institution.* By A. P. W. PHILIP, M.D., &c.

IT is a doctrine almost peculiar, in the present day, to Dr Wilson Philip, that the division of the pneumo-gastric neris followed by the cessation of the process of digestion; and that the effects which are thus produced, are either entirely, or in a great degree, obviated by the use of the galvanic power. It is evident that this opinion resolves itself into two different propositions,—one relating to the influence of the nerve, the other to an analogy or resemblance which is supposed to exist between that influence and the phenomena of galvanism; and as the latter of these notions, especially, was one of that nature which many physiologists had at different times attempted to establish, the Royal Society, with the interest and zeal for science with which they have ever been distinguished, caused the experiments on which the hypothesis was founded to be performed.

" Mr Brodie, and two others of its members, were deputed to practise that experiment which Dr Wilson Philip states to have so uniformly afforded him the results which induced him and others to arrive at the conclusions above mentioned. At each trial two rabbits were fed with parsley after a long fast, and the eighth pair of nerves was divided in both instances in the neck; one of them continued unmolested, and the other was subjected to the galvanic influence. The conclusions to which these gentlemen came were, 1. That *the respiration did not appear in any case to be at all improved by the galvanic power;* and, 2. That *no sensible change was wrought upon the parsley in the stomach, so as to render it in any respect different in appearance to (from) that of the other rabbit, which had not been galvanized.* This was accordingly the report which the Royal Society received.

" At a subsequent period, Mr Brodie divided the eighth pair of nerves in a cat, close upon the stomach, below the branches which supply the lungs, so as to observe the effects upon digestion alone. No symptoms whatever were observed, and the functions of life appeared to continue naturally for a week and three days, at the end of which period the animal was killed. The nervous filaments were found to be completely divided, and digestion seemed to have continued. A repetition of this experiment produced the same result." p. 300.

Mr S. D. Broughton was induced, by the importance of the subject, and the ambiguous nature and result of the investigation, to institute a similar experimental inquiry, with the twofold purpose of ascertaining the influence which the division of the nerve exercised on digestion, and of knowing whether the galvanic excitement produced the effects which were attributed to it. His experiments, which are fifteen in number, were performed mostly on rabbits, and appear to have given anything but the results which Dr W. P. had announced. In one of the experiments (5th), death seems to have supervened so quickly, that it was impossible to judge of the change which had taken place on the food. In all of them there was observed the same difficulty of breathing which M. Le Gallois remarked in his experiments, and which he ascribed either to the closure of the glottis, or to the congestion in the lungs, and consequent effusion into the bronchia. In five of the experiments (8th, 9th, 10th, 11th, and 12th), efforts at vomiting took place. In most of the animals, the parsley on which they were fed was moist, brown, and covered with chyme; indicating, as Mr Broughton seems to think, that whatever effect had succeeded the operation, it was not diminished secretion.

"Observations on rabbits simply destroyed without dividing the par vagum, compared with those on which division of the nerves had been practised, led me to observe that no difference was at all perceptible in the state of the food amongst the rabbits examined and compared, beyond the greater or less degree of progress which digestion had made in either; whilst in all which were operated on, the parsley eaten at the time of dividing the nerves chiefly occupied *the cardiac portion* of the stomach, was more or less *moist and brown*, and more or less enveloped with *chyme; appearances precisely coinciding with those of the rabbits not operated on.* Moreover, no difference could be detected in the *odour* emitted from the contents of the stomachs; and in an animal fed after a long fast, and then immediately killed, the parsley in the stomach exactly resembled that of the œsophagus in the rabbits operated on, being *free from a mixture of fluid, and of a bright green colour;* being, in fact, nothing else in appearance but simple chopped parsley, unacted upon to the smell as well as to the eye. If any doubts can exist as to the appearances I have described being any other than those which result from *digestion*, I appeal to the experiment on the *dog*, in which a small quantity of *whey* remained after he had drank a saucer full of *milk*, and the *curd had disappeared.* I may appeal also to the experiment of the *second horse*, in which the animal having eaten of hay freely during twenty-four hours of apparent absence of all symptoms, there was found *scarcely any hay* in the stomach. In addition to which, it is to be observed, that this horse, as well as the dog and the rabbits, passed feces and urine naturally at different periods, after the division of the nerves." p. 309.

It could not be expected that conclusions containing such a direct contradiction to Dr W. P.'s experiments, should be passed over without notice; and an elaborate refutation of them, with a defence of his preceptor's doctrines, was accordingly published by Dr Hastings of Worcester, in the subsequent Number of the same Journal. The arguments which Dr Hastings employs for this purpose are derived from the testimony of other authors, such as Haller, Blainville, Dr Haighton, and Le Gallois,—from repeated experiments of his own, several of which he details,—and from the doubtful or imperfect nature of the results, which, he thinks, Mr Broughton obtained. The experiments of Dr H. are of two kinds; one for the purpose of showing the phenomena of healthy digestion; the other for t purpose of showing the modifications which this process undergoes by dividing the nerve in question. In each of his 5th and 6th experiments, two animals were employed in order to contrast the effects of division with the phenomena of the healthy process. In each of the animals on which the nerve was divided, Dr Hastings states, that the stomach was very large, the œsophagus full of the substance eaten, and that it was possible to recognise the cabbage or parsley on which the animals had fed, very nearly in the state in which substances are found after a meal; that is, without having undergone the ordinary changes in which the digestive or chymifying process consists. The same results nearly were observed in the subject of the 7th experiment; and in the 8th and 9th, on dogs, the stomach, which was much distended, contained the animal substances which the animals had eaten very little changed, unless at their exterior surface.

"From the above experiments it appears; 1. That, during life, we have symptoms of great disturbance of the functions of the stomach after the division of the eighth pair of nerves in the neck; for in the rabbits, frequent ineffectual efforts to vomit occurred; and in the dog, (Experiment 9.), part of the contents of the stomach was rejected. 2. That examination after death shows, that digestion does not go on after the eighth pair of nerves have been divided in the neck; for parsley and cabbage remained in the stomachs of rabbits nearly eighteen hours, without any other change than that which had been produced by mastication, and that of becoming rather of a browner colour; whereas, in a healthy rabbit, whose nerves had not been divided, the same substances, in a similar time, were reduced to a pulp, and were in a complete state of chemical decomposition. The stomachs, too, in the animals whose nerves had been divided, were much distended; the contents weighing nearly twice as much as the contents of the healthy stomachs. And in experiment 9, where only one nerve was divided, the food remained in the stomach, nearly unchanged, for forty-four hours." p. 56.

As our object is rather to communicate information than examine the comparative justice of the opposite sides, we must decline interfering with the respective charges of incompatibility or misrepresentation which these rival experimentalists bring against each other, or noticing the zealous reclamations which have since passed between them. It is sufficient for our purpose to state, that an interview which has since taken place between Dr W. Philip and Mr Broughton, has put a most seasonable and desirable consummation to the controversy. It gives us extreme pleasure to record the results which have taken place, and which, if they have not established the opinions of either experimentalist, have at least demonstrated to the world the disinterested and truly philosophic feelings of the parties.

"After the usual fasting, and subsequent feeding with parsley, the eighth pair of nerves were divided in the necks of three rabbits. One was submitted to the galvanic influence, after the usual manner of Dr Philip, and the other two were left to themselves. After a few hours the two latter were successively killed, and *in both digestion was perfect.* The galvanised rabbit was then destroyed; and in the stomach of this animal the parsley had undergone *very little alteration.* I may add, with respect to the respiration of the latter rabbit, that, though there was a difference more or less observable at times in its breathing, yet, (that) it did not continue, throughout the experiment, to breathe freely and naturally. Whatever difference was observable, was *in favour of the galvanic influence,* which was occasionally interrupted for a time.

"Dr Wilson Philip acknowledged, in the most candid manner, the results of these experiments, so contrary to his alleged constant experience, and felt himself called upon to persevere in his endeavours to ascertain the cause of such a striking difference between these and Dr Hastings's results. Several rabbits were subsequently operated upon, in the usual manner, with one exception, and that, it appears, a most important one. The nerves being divided, pains were taken to keep their extremities asunder, so as entirely to prevent any contact between them; a plan always adopted (says Dr Philip) by Dr Hastings, who made *all* Dr Wilson Philip's experiments for him. In all the rabbits so treated, and some, in which a piece of the nerve was cut out, including two rabbits sent by Dr Hastings from Worcester after being killed, it was much to my surprise, that though in *all* there was more or less digested parsley to be found, yet in *none* had digestion gone on so completely as in my own experiments, and in the two first rabbits mentioned above.

"The difference indeed was very striking, so much so as to afford strong grounds for supposing that Dr Wilson Philip was correct in believing, that in the different modes of dividing the nerves, was to be found the cause of the different results; and there is to be attributed a power in the nerves, to carry on the influence of the brain, after they are divided simply, without any obstruction to their subsequently coming into contact.

"The galvanised rabbit had remained singularly quiet the whole time, breathing freely, and with no more apparent distress than the twitches usually produced by the galvanic influence, which in this case was uninterruptedly kept up. The other rabbits laboured strongly in their breathing. They were all three killed at the same period, and their stomachs successively opened. In the two non-galvanised rabbits, digestion had *scarcely made any progress;* but in that galvanised, it was *perfect,* in the manner, to all appearanee, avowed by Dr Wilson Philip and his supporters. However we may differ in opinion as to the real state of the food in the non-galvanised rabbits, as to Dr Wilson Philip's theory, or as to the cause of the formation of chyme and chyle being found under the influence of a galvanic battery, Dr Wilson Philip cannot be denied the merit of correctness in his assertions (hitherto almost universally distrusted) relative to the simple fact of a certain power of galvanism producing digestion, after dividing the eighth pair of nerves, under circumstances in which it is impeded without the galvanism." p. 325–327.

The variation of result which Mr Broughton has above remarked, as arising from the precaution of keeping the divided portions of the nerve apart, has suggested to Dr W. Philip a doubt, "Whether the nervous influence is still conveyed in consequence of the divided ends of the nerves remaining in actual contact, or in consequence of its passing through moisture, or other intervening bodies."

"In order to determine this question, the following experiment was made, in which Mr Cutler, assistant surgeon to the second regiment of Life Guards, had the goodness to assist me.

"A rabbit was kept without food for twenty-four hours, and then allowed to eat as much parsley as it chose. As soon as it ceased to eat, the eighth pair of nerves were divided in the neck, without displacing them. It was evident, both to Mr Cutler and myself, that, at the moment the division of the nerves was made, the ends so retracted as to cause them to separate from each other to about the distance of the sixth part of an inch. The animal was allowed no food after the operation. It was found dead at the end of eight hours.

"On the stomach being opened, it appeared that digestion of the new food had made considerable progress. The neck was examined, and the divided ends of the nerves were found to have remained at the above mentioned distance from each other.

"This experiment was repeated in all respects in the same manner. The ends of the nerves now retracted to the distance of a quarter of an inch from each other on both sides. The animal lived about six hours, and the digestion of the new food was far advanced.

"Mr Brodie examined the state of the food, and the position of the divided nerves in this rabbit; and both he and Mr Cutler, allow me to state, that they are satisfied that the nervous influence had, in the foregoing experiments, passed from the upper to the lower portions of the divided nerves."

After the specimen of scientific dissent and agreement which we have here exhibited, it might be deemed truly presumptuous in us to offer any opinion of our own, or even to assume the part of mediators; and indeed the discordant results of the trials made by experimentalists, offer no encouragement to future researches. But the few experiments of the kind which we have seen, the effects of those which we have known, and the little knowledge of the nerve concerned, to which we may, without excessive arrogance, lay claim, have suggested some reflections which we are unwilling to withhold.

1*st*, We think it is quite certain that the division of the pneumo-gastric nerve which Dr W. P. has employed, is entirely unsuitable to demonstrate the influence which this operation exercises on the stomach, its actions, or secretions. The experimental researches of M. Le Gallois, and many authors both before and after him, have clearly shown, that the most conspicuous effect arising from this operation, was referable to the paralysis of the arytenoid muscles, and the consequent pulmonary congestion and unhealthy bronchial secretion. We must therefore lay it down as a settled point, that it is extremely difficult to analyze the various effects resulting from this operation, and to separate and estimate those which are truly referable to lesion of the actions and functions of the stomach. We entirely agree with M. Magendie in thinking, that, in order to determine what is the peculiar effect resulting from the operation, it is requisite to divide those twigs or fibrils only of this nerve which go to the stomach. * This operation has been indeed performed by Dupuytren, Magendie, Brodie, &c., and the effects have not accorded with those which Dr Wilson Philip's doctrines would lead us to anticipate; but a great objection to the facility of observing and drawing legitimate and direct inferences, is the injury necessarily done to the animal in the operation; and we are almost certain that few logical or unbiassed inquirers would be disposed to draw conclusions from the present scanty, discordant, and uncertain results which are related by various experimentalists.

2d, We cannot divine what has tempted Dr W. Philip to fix on this unfortunate eighth pair for all his doctrines on the subject of digestion, and especially that most mysterious of all organic processes—secretion. Why does he render it the exclusive and individual agent of so many important phenomena? It is certainly not the only gastric nerve, and it is subservient to many other purposes besides sending a few twigs to the stomach. It is unnecessary, and would be perhaps nugatory, to quote our own authority on a matter of fact and observation, in which every one observer must be nearly as well informed as another; but, if we adduce the authority of Walter, &c. to support our own, we find that we are correct in saying, that the gastric twigs of the right *nervus vagus* are found contiguous chiefly to the pyloric region, and thence along the small curvature, in the course of which they communicate with those of the left side; that the gastric twigs of the left *nervus vagus*, proceeding from the cardiac region along the small curvature, descend obliquely, in general with ramifications of the coronary artery, and either sink into the substance of the gastric tissues, or form anastomoses with the twigs of the left branch. Throughout this enticourse, it forms repeated and innumerable connexions with the splanchnic nerve, many divisions of which go to the gastric tissues, in company with the right and left gastro-epiploic arteries, along the convex or great curvature of the stomach. The reflections to which this anatomical distribution must give rise, did not escape Dr Haighton; but, if we are again to be perplexed with this everlasting wandering nerve, why are we not informed of the effects which arise from the division of its gastric twigs only, and of the division of the other gastric nerves, as, for example, the splanchnic branches? However we may respect the physiological zeal, and the indefatigable enthusiasm of Dr W. Philip, still it is impossible to admit the inferences which he has derived from the division of the pneumo-gastric nerve, such as he has practised it.

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* Précis Elémentaire, tome II. pp. 94, 95.

3*d*, On the second part of Dr W. P.'s doctrine,—the analogy between the galvanic and the nervous power or action, we are not favoured with any observations from either of the parties;—Mr Broughton, in the early part of his researches, deeming such inquiry unnecessary, and subsequently relating, as we have seen, what was observed in the presence of himself and Dr W. P.; and Dr Hastings's declining to enter on the subject at all. We must admit our inability to understand precisely whether Dr W. P. admits the existence of an actual nervous influence, and its analogy to the galvanic action; or whether he means to say, that the galvanic action merely excites the nervous and the muscular system, or the extremities of arteries concerned in the process of secretion. If the former be his opinion, he is certainly almost the only physiological writer of any eminence who espouses such a puerile and unfounded speculation, and who has the weakness to explain physiological phenomena, by referring them to physical ones equally obscure and unintelligible.

From his language, in the concluding sentence above quoted, it may be inferred, that he deems this *nervous influence* an actual material existence, of a palpable nature, and which is conveyed through sensible distances by the animal tissues. Is it quite consistent, we would ask, to consider this *influence* as capable of being conveyed, in the one case, over the space of one-sixth of an inch, in the other one-fourth of an inch, not through nervous texture, but along the contiguous cellular membrane, or, as it may happen, through the serous or bloody fluid interposed between the two cut extremities; and then to inform us, that if the lower portion be folded back, which can make only a very trifling difference, this influence no longer passes to that inferior portion, which receives and transmits the galvanic action only? What, in this case, becomes of the *influence* transmitted from the superior portion of the nerve? Can it not be made to pass a little further,—for example, one or two lines, and then enter the lower portion by the side?—or can it not make a trifling circuit, and, with a sort of secret affinity for its natural organic conveyance, enter even by the folded extremity, as well as by its direct route? It might be concluded, from the very manageable nature of the *nervous influence* in the hands of our physiologist, that all these things might have been accomplished without much difficulty.

On Dr W. Philip's supposition, that this nervous influence possesses no power, sensorial or vital, but that of a chemical agent, we feel it difficult either to form or deliver an opinion; because that opinion, at present, whatever may subsequently induce us to change it, can express only dissent from the conclusions which he has formed.

It is surely not in the nineteenth century, after Stahl, Cullen, Hunter and Bichat, have passed successively before the eyes of their fellow-men,—it is surely not in the nineteenth century, after Newton, D'Alembert and La Place, have shown what physical properties can do, and what is beyond their reach, that physicians are to be amused with this galvanic hypothesis of nervous influence and secretion; nor are we to be informed, by those who seem so little conversant with the peculiar nature of chemical and vital phenomena, that the duties of this supposed nervous influence or energy may be performed by the agency of the voltaic pile. We cannot deny that the galvanic power excites the muscular fibre like any other agent, chemical or mechanical, and may possibly, in the same manner, maintain or increase the gastric secretions; but this neither proves its analogy with the properties of the nervous system, nor enables us to perceive in what manner secretion and muscular action are performed. We must presume that Dr W. Philip and Dr Hastings are aware of these distinctions; yet we are not told whether any means have been employed to obviate or avoid fallacies of this description. We may further remark, that in trying the effects of the galvanic action, many seem to overlook the important fact, that a nerve or a nervous twig does not receive or communicate the galvanic action better than any other tissue;—that a muscular fibre, or even a moistened thread, does it quite as perfectly;—and that the nerve conveys it, not because it is a nerve, but merely because it is an animal substance well moistened, and continuous with the part to be excited. The practice of applying galvanism to nerves is indeed a remnant of that mystical physiology which centuries ago led Paracelsus to dream of his *radical heat and moisture*, and Stahl and

Van Helmont of their vital principle; and to which we generally remark, that all those who, in the present day, aspire at an extraordinary character for researches in those obscure and shadowy regions of science, to which they are sure few will follow to expose their errors, never fail to manifest an inclination. We do not pretend to have smitten to the death so many rabbits and dogs as these experimentalists have very laudably done; but this does not prevent us from perceiving, that not only have they misled others by their inferences, but they have also deceived themselves in their results. We will neither ridicule nor censure this mode of unfolding the secrets of nature in regard to the animal economy; for it is one to which we owe much, and from which, if properly directed, we may yet hope to derive infinite assistance. But the facility with which most experimentalists render the results of their researches subservient to their own opinions exclusively, is an objection which will prevent either party from yielding to the other, and cannot fail to darken and perplex any subject which is of itself neither clear nor obvious.

This is, indeed, one of those felicitously ambiguous subjects, in which men may long dispute without either comprehending each other, or perceiving the precise nature of the points on which they are at issue; and all those who are interested in the progress of rational and sober physiology, would wish it to be either investigated in a manner totally different from that in which it has been hitherto done, or entirely banished from the confines of a science which ought to rest on no other foundation but that of accurate observation, and experiment unsophisticated by hypothesis.

V.

Cases of Tic Douloureux successfully treated. By BENJAMIN HUTCHINSON, Member of the Royal College of Surgeons of London, &c. &c. London, 1820. 8vo. pp. 71.

IN our account of the work of Mr Swan, we had occasion to make some animadversions on the treatment of *tic douloureux*, and the comparative advantages of dividing the nerve, or treating the complaint by remedies which should operate on the constitution. There are, indeed, very few diseases, in the management of which it is of more importance to determine whether it is of a local nature, or depends on causes of a more general description. It avails not to argue, that the operation is, in most situations, so trifling and so easy, that it can scarcely require much reflection or delay. Whatever it may be to the surgeon, it is a matter of some consequence to the patient to be relieved, without having recourse to a remedy which is always painful, and has been found in many instances to be ineffectual.

When the disease began to attract the attention of medical men, it was considered a local affection entirely, both in its pathological nature, and in its origin; and the local treatment was, therefore, the most rational, and appeared in general to answer the expectations with which it was employed. The frequency, however, with which the operation has failed to produce even a temporary cure, has led many practical men to doubt its propriety in any circumstances, and must certainly shake the faith of many who deemed it the most rational and certain benefit which the science of anatomy ever conferred on the practice of surgery.

Our readers are perhaps aware, that this change in treatment has not been effected suddenly, or at one step; for, in addition to many remedies which act on the alimentary canal, or the circulation, there were employed of late years not a few, the ambiguous operation of which has been conveniently expressed by saying that they exerted an alterative influence. Of this kind, perhaps, are the mercurial and arsenical remedies for tic douloureux. We know not to what class to refer the remedy proposed by Mr Hutchinson, and stated by him, on very strong testimony, to afford a most certain, efficacious, and permanent cure. The remedy which our author, from experience of considerable extent, proposes, is the carbonate of iron, prepared from the sulphate by precipitation, by means of carbonate of soda. While he admits that this is not a new or unknown medicine, he contends that its exhibition in this disease is peculiar to himself; and especially, that it has never been given in doses sufficiently large to produce a great and material effect on the constitution. The doses employed by our author are half a drachm, or four scruples, two or three times daily. In some of his cases, he commenced with half a drachm three times daily, and increased it to the quantity of four scruples twice a day; a dose which, our author gives us to understand, may be continued for several weeks, in the course of which it rarely happens that the disease is not completely extirpated. He further remarks, that this mode of exhibiting the precipitated carbonate ought not to be restricted to *tic douloureux*, but should be employed in every form of disease in which iron is to be deemed beneficial.

We cannot say that we have much faith in specific medicines in any disease, nor perhaps would we place much reliance on any one mode of treatment, to the exclusion of all others; and, while we are willing to believe that Mr Hutchinson's carbonate of iron is a most powerful and efficacious medicine in several of the forms of *tic douloureux*, yet we must not be understood to consider it in the light of a never-failing anti-neuralgic agent. To us, indeed, it appears now almost certain, either that there are varieties of the disease which demand different modes of curative management; or that, at different periods and stages of its progress, the pathological state of the nerve which gives rise to the neuralgic symptoms, is so different, that it does not at all times admit the administration of the same remedies with effect. While, therefore, we sincerely recommend the labours of Mr Hutchinson to the serious attention of our brethren, we must not conclude this brief notice without observing, that it is requisite to attend to the collateral circumstances in the health and constitution of the patient at the moment; that no mode of treatment can be planned, and no medicine exhibited, without considering the age, constitution, and habits of the individual,—without discovering, at least in some degree, whether the malady depends on general or local causes, and on which kind of each it depends;—that, in some instances, neither antiphlogistic measures alone, nor evacuating, nor tonic, nor alterative remedies, will effect a cure;—that calomel, arsenical solution, carbonate of iron, or even the operation, may be tried without decided benefit,—until some unseen change gradually take place in the part affected, or in the system at large, and then either enable the remedy to effect the rest, or probably place the parts concerned in a situation favourable to the recovery of their original action.

PART III.

MEDICAL INTELLIGENCE.

An Account of James Wilson, Esq. Surgeon and Co-lecturer on Anatomy, in the Hunterian Theatre, Windmill Street.

The lamentable event of Mr Wilson's death took place on the 17th November last, at his house in Tenterden Street, Hanover Square, while writing at his desk, and without any distinct previous disease, but after some preceding complaints of distension of the blood-vessels of the head. A person was in the same apartment transacting business with Mr Wilson when the sad event occurred. It is almost unnecessary to say, that medical assistance was immediately afforded, but fruitlessly. On the 23d November, the following report was issued to some of the friends of the late highly respected gentleman.

"The whole surface of the left lung adhered to the sides of the chest. Both lungs were loaded with blood and fluids, the left lung more especially; yet in neither was there any tubercular disease or induration. Both sides of the heart were empty, as also the thoracic aorta, and there was no disease in them except a slight thickening of the semilunar valves of that vessel. It therefore appears, that at the time of the death, the blood did not return to the heart, either from the lungs or general system. The vessels of the dura and pia mater were turgid with blood. Serous effusion to a considerable extent had taken place between the tunica arachnoidea and pia mater. The interior vessels of the brain did not appear distended, and there was not more fluid than usual in the ventricles. The coats of the right carotid artery were thickened where it merges from the cavernous sinuses, and this vessel was dilated in its course through that cavity."

The immediate cause of death is perhaps sufficiently obvious, *namely*, the cessation of the action of the heart to propel the blood. As to the occasion of this cessation of a vital function, it seems probable that it was influenced considerably by mental affections from various adverse circumstances in common life, which it is well known have often produced a similar issue.

This valuable man's life was thus terminated at the age of about 56 years. His father, who is still living near London, placed his son, about the year 1784, with the late Mr Cruickshank, the celebrated anatomical successor of Dr William Hunter, under whom he was so well instructed, as to fully equal any teacher of anatomy in London. Mr Wilson was many years assistant to Mr Cruickshanks, on whose death, nearly twenty years ago, he became the teacher in the Windmill Street School, founded by Hunter. Mr Wilson's minute knowledge of anatomy was well known; he had perhaps no equal in forming anatomical preparations, on which his labours were astonishing. He was esteemed by the profession as one of the most judicious practical surgeons of his time; and was in great request with the public. Mr Wilson's amiable manners and friendly conduct to many persons, procured him the good offices of many wealthy families. He was appointed lately Professor of Anatomy to the College of Surgeons. The lectures which he there officially delivered, are now published. If they do not abound with novelties like those of some of his brother professors, it is allowed that they are inferior to none in utility and display of judgment. This honourable man has left a widow and three daughters, beloved by all who know them; likewise a son, Dr James Arthur Wilson, who has distinguished himself at Oxford, and obtained, a few months ago, the Ratcliffe Travelling Fellowship.

Extracts from a Letter to Dr A. Duncan, from a Physician in London.

1. *Oil of Croton Tiglium,—the Oil of the Malabar, Ceylon, and Molucca Ricinus.*

SINCE the introduction of this article by Mr Short, the oil of Croton Tiglium has been extensively employed. The due doses and modes of administration not being rightly known, the effects were so violent as to occasion many practitioners to reject it. This has been its fate generally in Malabar, the *natale solum* of the tree *Croton T.* It has been by Rumphius, and in the Hortus Malabaricus, designated with plates nearly 150 years ago. Whether the Κροτων of the Greek writers, and the Croton of Pliny and other Latin writers, be the same as the Croton Tiglium designated by Icons in later times, or some other species of the genus Croton and Ricinus, we have no means of determining for want of plates and descriptions. This oil, however, seems to have been in little request by the Greeks and Romans, and has been rather more employed for affording light in lamps, and for external use, than as a medicine. But this was the case with the oil of the West India ricinus communis, till Canvane's book, 45 years ago. The oil of croton tiglium, however, is as manageable and mild in its operation, when duly dosed and skilfully commingled, with appropriate assistance, as castor oil. This I assert from experience.

This medicine may be obtained genuine at No. 11, Ratcliffe Highway, from Mr Short, apothecary, who has published a circular containing the following testimonies of its qualities, and mode of administration.

" The croton oil is produced from the nuts of the croton tiglium, formerly known by the name of grana molucca, and is reckoned by the native doctors (*Vytians*) amongst the drastic purges. One drop is the usual dose for a grown person, which, according to circumstances, is increased to two or three. It may be formed into pills with any proper substance, or rubbed with sugar, adding ten drachms of peppermint-water to make a draught. I have given as many as e drops in obstinate bilious fevers, which not only produced an ng quantity of feculent matter, but copious perspiration. It operates usually in half an hour, without griping. I have used the croton-nut oil the last eighteen months, and can conscientiously recommend it as the speediest, most effectual, and safe purge I ever employed. "W. E. E. CONWELL."

"An excess in the dose acts by vomiting, especially in foul stomachs; it is a powerful evacuant of the bile; and by the Malays is administered successfully as an hydragogue. Some use two grains of the extract of catechu in the dose, to correct its acrimony.

"DR WHITE."

"Two pills, containing one drop, given to men of ordinary habits and undebilitated frame, produce a full purgation, such as is necessary, according to the usual practice, in the commencement of fevers. I estimate the dose as equal in power to a drachm of jalap, or six grains of calomel, and an ounce of Epsom salts. In a very short time after taking the pill or draught, perhaps in half an hour, the patient is sensible of a rumbling motion in the bowels, which, generally in less than another half hour, is followed by a stool. The rumbling continues during the whole of the operation. The stools are invariably watery and copious. In about one case in ten the medicine produces griping, and in one in thirty, nausea; but it is probable that similar effects would have arisen in these cases from any purgative medicine of equal power. In a case of general torpor and coma, I succeeded in producing numerous, though not very watery, stools; but in a case where the torpor of the bowels had been for some time a marked feature of the fever, Mr Surgeon Palmer gave three pills without effecting very copious motions.

"The great advantage of this purge appears to me to be the smallness of the bulk necessary to obtain the desired effect. In the two cases above mentioned, it would have been impossible for the patient to have swallowed a sufficient quantity of any other purgative. None of the drastic purges are so certain, none so rapid in their action, and none so little annoying by griping or nausea. I found the dose of one drop very successful in cases of diseased spleen, where the patients were obliged to have their bowels daily emptied,—an omission of this precaution being almost inevitably followed by a paroxysm of fever. By managing the exhibition of the medicine, so as to ensure its operation an hour or two before the time of the expected attack, it was almost certainly obviated.

(Signed) "THOMAS MARSHALL,
"Assistant Surgeon, Baricheur, near Surat."

2. *Arracacha.*

The root of this plant from Santa Fè is expected soon by one of our first naturalists. It grows in a climate of the temperature of England; and from the account given of it in the annals of Botany, it promises to equal the potato, although it is not of the family of *solanum*, but probably a *pastinaca*. We cannot have too many good things of this sort; although, it must be owned, we do not yet know the extent of the value of the *solanum tuberosum*.

3. *New Species of Cinchona.*

The learned botanist, Lambert, has lately become the possessor of at least 45 kinds of cinchona, being duplicates to a collection by the emissary Spanish naturalists lately sent over to Madrid from the cinchona forests of America.

4. *Balsam of Peru and of Tolu,*

Have been ascertained, by M. Lambert, to be from the same species of plant.

5. *Lamp Gas. Hydro-carburet Gas.*

The gas for illumination of the streets, shops, and houses in London, is very generally now obtained from oil, instead of coal. This is a fortunate circumstance, as it tends to support the whale fishery, so important to the United Kingdom.

6. *Manure of Peat.*

That indefatigable chemical philosopher, Lord Dundonald, although now nearly an octogenarian, and with an infant family by his late marriage, is, among other pursuits, proceeding successfully in putrefying peat, to render it fit for manure.

Extract of a Letter from an Officer at Banda, July 1821, *to Dr Duncan, junior.*

The last hot season has been the most severe I ever experienced. Within doors, behind Tattees, we were pretty comfortable; but outside, the wind felt like flames of fire, Numbers of people were killed by it every day; and, badly as the cholera raged at the same time, more people, I believe, were killed by the Loo, as the natives term the hot destructive wind. Its effects were instantaneous. Without any previous sickness, and without the slightest warning, the person struck by it at once drops dead. Six men sitting together in a cloth merchant's shop here, all at the same moment fell dead. If water can be immediately procured to throw over them, they sometimes, it is said, recover. In no case, however, out of the many which happened here, was there a single instance of recovery.

The cholera is nearly as quick in its work of destruction; but it is attended with horrid agonies. Lieutenant B. of my battalion, left the parade on the morning of 25th June, about 6 o'clock, in the most perfect health, and decidedly the stoutest officer in the corps. He was shortly afterwards seized with cholera, and was dead before 2 *p. m.* Every remedy that was ever heard of, was tried in vain. Not the slightest check was given to the disease. Bleeding alone appeared to afford temporary relief; and he was bled at different times to such an extent, that the surgeon was afraid to repeat it. This disease, I mean in the shape it assumes in this country, is, I believe, unknown in Europe. It almost instantly changes the countenance, and terminates fatally in a few hours. Poor B. was a very stout young man, 30 years of age, with a round plump face. In an hour his eyes were sunk in his head, and his cheeks had entirely fallen away; his face was altogether so completely changed, that he could hardly be known to be the same person.

On the supposed Decarbonizing Power of the Liver.
From a Correspondent.

Sir,—In a late Number of your Journal, Dr Macdonnell has attempted to prove, that the liver assists the lungs in the decarbonization of the blood; and I observe, from a notice in the September Number, of the Medico-Chirurgical Review, that a similar theory has been proposed by an American physiologist. Without inquiring into the merits of the question itself, may I take the liberty of pointing out to you, that they have both been anticipated? Bichat, in the second volume of his *Anatomie Generale,* * comments on this supposed duty of the liver, and talks of it, not as a conjecture of his own, but as a doctrine common amongst his brethren, though unsupported by any direct facts. Some of the most ingenious reasoning in this volume of Bichat's work, is expended on the question of the secondary office of this viscus; and though I am obliged, in justice to the memory of this distinguished anatomist, to destroy the claim to originality which, judging from the tone of these remarks, each gentleman seems anxious to establish for himself, I by no means wish to underrate the value of the communications with which Drs Macdonnell and Pierson have favoured the profession. From the importance of the liver in the system,—from its presence in all animals, even in those where other essential viscera are very imperfect,—from the care which nature has taken to supply it with blood,—from the frequency of its organic and sympathetic affections, and from its influence over the general character,—Bichat concluded, that the secretion of bile was not the only office which it had to perform; that there was still another, perhaps of equal consequence, but of the nature of which we are entirely ignorant, though, in all probability, connected with the ultimate destination of the abdominal black blood, which he believed to be an independent and peculiar circulation. "It has been said of late, he remarks, that the liver is supplementary to the lungs in their duty of separating from the blood its hydrogen and carbon. I know not how this fact can be verified by experiment, but of this I am certain, that the liver does not change the black blood of the abdominal system into red. In the *first* place, the blood of the right auricle is of the same colour as that of the inferior vena cava; but if the blood was sent out red from the hepatic veins, it would certainly make that of the right auricle a little brighter. *Secondly,* Having opened the belly and breast of a dog, I tied the vena cava with a curved needle at its entrance into the heart, and above the kidney, then detaching the liver posteriorly, I cut the portion included within the ligatures, and where the hepatic veins open. The blood flowed from it as black as from the rest of the system. *Thirdly,* Take out the liver of a living animal, and examine carefully the veins, and you will find that they contain blood similar to what is contained by the other veins. *Fourthly,* Cut into slices in a living animal, this viscus pours out a fluid perfectly similar, with the exception of a few red streaks furnished by the last branches of the hepatic artery; which differs from the same experiment made on the lungs. If the abdominal black blood undergoes some modifications in the liver, it is certain that these do not affect either its colour, its consistence, or its tangible qualities." *

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* Anat. Generale, Tom. II. p. 452.

I know not whether, in this instance, the testimony of Bichat will be received as conclusive. It is the fashion of the day to talk of him as a visionary—as a man whose imagination was more powerful than his judgment, and who suffered his theoretical preconceptions to exert undue influence over his conclusions. I regret that his unfortunate division of life gives some countenance to these sentiments; but I would have those who talk slightingly of the most indefatigable anatomist of his age remember, that physiological science owes him much, and that the systematic form which it has of late assumed, is a direct consequence of the unwearied labours of this accomplished man. Had he lived, it is probable that time, and the numerous improvements which have taken place in general science since his death, would have induced him to alter his peculiar views; and I do not hesitate to profess myself one of those who think, that if any man was destined to give to medicine that solid philosophical stability which it unfortunately does not at present possess, Bichat was that man. He had in an eminent degree the *esprit judicieux*, the *esprit methodique*, which his countrymen are so fond of talking about; but he had in addition, learning, patience, modesty, and impartiality, and if he has erred, who would not gladly have been the companion of his wanderings? I am, &c.

Extract of a Letter to Dr Duncan junior, from Dr James Orr, on the Use of the Piper Cubeba in Leucorrhœa.

Edinburgh, 27th November, 1821.

As you were pleased to express yourself interested in the success of the treatment of leucorrhœa by *cubebs*, and were so good as to intrust to my charge some patients labouring under that affection; I take the liberty of presenting to you the following brief account. I have selected four who were of the better order of patients attending the Royal Dispensary, and in whose reports I could best confide.

No. 1. had laboured under the complaint for seven months, was much debilitated, and had lost much flesh; complained also of pains in the loins and back, with anorexia and other dyspeptic symptoms. She had used *tinctura muriatis ferri* for some time without effect. She was ordered ʒiii. of cubebs daily. For one day her appetite was much improved; on the second day the discharge was diminished; and by the sixth day it had ceased, and her appearance very much improved. About three weeks afterwards the disease returned; but was removed in five days by similar treatment.

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* Anat. Generale Tom. II. pp. 454—455.

No. 2. had been affected with leucorrhœa, for nearly eight years, with occasional short intervals of health; the dyspeptic symptoms were particularly severe; had used several remedies, but with very little advantage. Piper cubeba was ordered in doses of ʒiss. thrice daily. The dyspeptic symptoms were immediately relieved. The quantity of the discharge was not lessened till the eighth or ninth day. It disappeared entirely in a fortnight.

In No. 3. the disease was of two years' standing. The symptoms were nearly as in No. 1., except that the debility was greater. She had used astringent injections without any effect. She went to the harvest about twelve days after she began to use the cubebs, and returned perfectly well.

No. 4. had had leucorrhœa for six months, and had used several remedies. The disease yielded to cubebs in doses of ʒiss. three times a day.

In the first three cases the disease succeeded to abortion,—a circumstance to which my attention was directed by Dr Campbell, lecturer on Midwifery, whose talents and industry are too well known to require any eulogium.

The pepper was administered either in water, or milk, or made into an electuary with treacle.

It may not be unworthy of notice, that a patient, who said she had leucorrhœa, but afterwards confessed it was gonorrhœa, took about ℥xii. of cubebs without any effect but a very slight diminution of the discharge. She was afterwards cured by injections. Wishing to ascertain whether it had the effect of diminishing increased discharges from mucous membranes in general, I gave it in a case in which there was a considerable mucous discharge from the trachea. The complaint was much alleviated; but there were circumstances in the case which rendered it doubtful whether the amendment should be attributed to that alone. I have not been so fortunate as to meet with cases for determining this matter, but think it a legitimate field for the experiment.

Professor Kuhn's Edition of the Works of Galen.

Κλαυδιου Γαληνου Απαντα. *Claudii Galeni Opera omnia.* Edit. cur. D. Car. Gottlieb Kühn. T. II. Lipsiæ, 1821.

Every lover of Greek literature will hail with pleasure the appearance of this second volume of the "*Medicorum Græcorum Opera quæ extant,*" so speedily after the publication of the first. This activity induces us to augur well respecting the completion of the work, and to cherish an earnest hope that the learned editor, though advanced in years, may be spared to complete this great undertaking. We sincerely hope our countrymen will not be backward in patronizing this work; but that they will give their assistance liberally; particularly, as copies may be readily procured through the medium of the foreign medical booksellers in Edinburgh or London. The contents of this volume are as follow. 1. De naturalibus facultatibus, pp. 1 to 214. 2. De anatomicis administrationibus, pp. 215–731. 3. De ossibus ad tirones, pp. 732–778. 4. De venarum arteriarumque dissectione, pp. 779–830. 5. De nervorum dissectione, pp. 831–856. 6. De instrumento odoratus, pp. 857–886. 7. De uteri dissectione, pp. 887–908.

Dutch Prize Questions.

The following Questions proposed as subjects for Prizes by the Dutch Society of Sciences at Haerlem, are worthy of notice; and are well deserving of the attention of the naturalist as well as of the physician. "Owing to what cause is it that oysters become, occasionally, prejudicial to health, as was more particularly observed during the past year? Is it occasioned by a small worm found in the oyster? If so, what is the kind of worm, and how is it most easily to be detected in the oyster? Are oysters subject to it only at certain periods of the year; and are there any circumstances which promote this peculiar state? Has the poison of oysters any affinity to that which occasionally renders muscles poisonous, or injurious to the health? and what are the distinguishing characteristics of these two kinds of poison? What are the diseases or indispositions produced by eating poisonous oysters or muscles? and what remedies are best adapted to cut short the disease at its origin, or to prevent it entirely?"

A similar question is proposed by the same Society, respecting the flesh of a species of Deer. "Whence does it happen that the flesh of the *Chevrette* (Cervus capreolus) is sometimes of a noxious quality? How is the poisonous animal to be distinguished? What are the diseases produced by eating this kind of flesh? how are they best cured, and which is the best prophylactic?"

In this country the oyster is not observed to be hurtful, but is considered as nourishing, and easy of digestion. In the West Indies, indeed, some suspicion is attached to oysters which adhere to the mangrove trees, but perhaps without much foundation; for on the coast of Africa, and especially in the river Sierra Leone, the mangrove oyster is much used for food, without producing any bad effects; or if they do occur, they are more justly referable to other causes than to the poisonous nature of the oyster. Towards the muscle, popular opinion is not so favourable even in this country; and many instances are recorded of its exciting disorder in the system. Opinions, however, differ with regard to the cause; some assert that the muscle is poisonous only at certain periods; while others refer the bad effects solely to the *byssus*, or beard of the muscle. One cause of the neglect in which the muscle is held, may be its great abundance. It is offered to us in great profusion, and also in great perfection on the whole of our seacoast; but too commonly rejected, even by the lower classes, at least in the river Tyne and its neighbourhood, though capable of forming a nutritious and savoury meal. In Holland, however, these scruples do not exist; for muscles are there daily exposed for sale in the market in large quantities, and are eaten with avidity by the people, with no other preparation than that of dipping the fish in vinegar previous to eating it.[*] When bad effects do actually arise from eating muscles, they seem, most probably, to be occasioned by a certain peculiarity of stomach, called idiosyncrasy; owing to which, various articles of diet, apparently mild, produce in certain constitutions considerable disorder of the system. Crabs are poisonous to some persons; milk taken after fish to others; and again, to others, the kernels of stone fruits; the skin of the common almond, &c. But, different as these substances are in themselves, one would be tempted to refer their effects, being so similar to each other, to one common principle. They all act by first disordering the stomach, and then producing general erethismus, and efflorescence, on the skin, like urticaria.[†] The poisonous bitter of the lauro-cerasus, probably, differs from that of the almond, and the kernel—bitter in general, only in degree of intensity; but there is reason to believe, that they also bear a strong affinity to the prussic acid in their effects; and when they disorder the stomach by idiosyncrasy, there are grounds to suspect, that the same effect will be produced by the hydrocyanic or prussic acid.

December 11, 1821. T. M. W.

Inoculation of the Human Subject with the Matter of Glanders. Copied from a Subscription Paper in the Hotel Coffee-house, Leeds, June 4th, 1821.

A HORSE belonging to the Badsworth Hunt having died of the glanders, the dog-feeder to the hounds was ordered to cut up the carcase, in doing which he accidentally wounded his hand, and thereby inoculated his own system with the poisonous matter from the dead horse. In a few days he betrayed all the symptoms which are first shown in the horses beginning in the above disease. He gradually became worse; and at the end of the week he died raving mad, labouring under a confirmed complaint of glanders. The rest of the paper details the distressed state of his family (a wife and ten children), and solicits aid. It is signed by

J. MUSCROFT, *Surgeon, Pontefract.*

On Neuralgia Spasmodica, with the History of two Cases successfully treated. By BENJAMIN HUTCHINSON, Member of the Royal College of Surgeons, London, &c. &c. &c.

THE instructive and very important paper given in the last Number of the Edinburgh Medical Journal, from the pen of that able Anatomist, Mr John Lizars, on the subject of Neuralgia of the Inferior Maxillary Nerve, or the Nervus Mandibulo-labialis, cured by dividing the nerve, induces me to request the insertion of two cases of Neuralgia Spasmodica, commonly called Tic Douloureux, which have been cured by the use of the carbonate of iron, administered in the manner recommended by me in a small pamphlet which I published last year, and of which, a second edition will soon appear with many additional cases and observations. The case so excellently related by Mr Lizars, forms one among the very short and scanty catalogue of successful events, from the interruption of nervous communication with the sensorium. A few very solitary instances are recorded of success from operations of this description; and the lamentably unfortunate relations are numerous indeed. My own ample experience has confirmed the almost uniform inutility of the knife, and the certainty of an augmented suffering to the miserable patient. Indeed, within the last few weeks, I have witnessed the miseries consequent to the division of the facial nerves, in a physician of the first eminence in London, whose sufferings from tic douloureux are of the most acute description; and these miseries he is fully convinced have been aggravated in a tenfold degree, by the painful operation of dividing the nerves. Mr Lizars's operation has certainly differed from that usually performed, by the division of the nerve where it enters the osseous canal,—a point at which, I believe, no preceding author on this subject mentions the operation to have been performed: On the contrary, as Mr Lizars truly remarks, it is considered by some as impracticable, by others as hazardous.

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[*] Muscles are eaten in Edinburgh in large quantities, without any precaution or preparation, both cooked in the plainest manner, and as an ingredient in the richest sauces, without any bad effect, except upon individuals of a peculiar idiosyncracy.—EDITOR.

[†] Some instances of this kind, particularly the effects of the common almond, are noticed in the Medical Facts, published by the late Dr Samuel Foart Simmons.

Case I.—The following is the case of a worthy baronet, the initials only of whose name I have the permission of mentioning thus publicly, but whose name is known to Dr Duncan, junior. I am indebted to an eminent physician in London for the history of the case, in whose words I shall take the liberty of giving the narrative.

" Sir R. J. A. K. Bart., last year High Sheriff of the county of Monmouth, aged about 46 years, experienced his first attack of tic douloureux, about four years ago. He was at that time in London, and suffered four or five paroxysms in the course of every day, generally on washing his face, and whenever he ate or drank. He had long been subject to dyspeptic symptoms, his constitution is leucophlegmatic, and his pulse generally small and languid. Previous to the attack of tic douloureux, he had been subject to very distressing and obstinate chronic inflammatory affections of the membrane lining the trachea.

" To relieve his painful and truly dreadful attacks of tic douloureux, he has tried a great variety of remedies, and the different modes of treatment recommended by all writers on this afflicting malady. From Mr Abernethy's judicious system, he certainly derived at one time essential benefit. The solution of arsenic afforded some trifling and temporary relief. The anodyne vegetable extracts have had a long and patient trial, particularly the deadly nightshade, hemlock, and henbane, without producing any material abatement of his torments. When at the sea-side, he has been entirely free from the complaint. At the time he began the use of the carbonate of iron in the doses recommended in your pamphlet, he was suffering in the most excruciating manner from very frequent and very painful paroxysms of the disease. After the second day of its use, he was considerably better; and in ten days, he was not only entirely free from the disease, but in a greatly improved state of health. He has lately experienced very slight attacks, or rather, (to use his own words), such shooting sensations as to induce him to imagine, that were he to commit any irregularities in his manner of living, he might experience some relapse. When the premonitory symptoms occur, he has recourse to the carbonate of iron, which most satisfactorily and speedily removes them. He is now perfectly well." The same distinguished physician, in a subsequent letter, dated May 30th, says, "Sir R. J. A. K. has continued free from every symptom of the disease ever since he left off the carbonate of iron. He is fully satisfied that he is indebted solely to the use of the iron, in the doses recommended by you, for the present improved state of his health, and for the total absence of the disease."

CASE II.—I experience much satisfaction in introducing the following case, which very strongly illustrates the beneficial effects of my mode of treating a disease, in its character and symptoms closely resembling the tic douleureux; the nerves of a different part of the system being affected in a manner similar to those of the face.

Miss B., a young lady residing at Mansfield, in the county of Nottingham, between twenty and thirty years of age, has been most excruciatingly afflicted with a painful affliction of the left side, commencing in October 1818, and gradually increasing in violence, for several months. The disease was accompanied with the greatest debility, and a total loss of appetite: her rest was completely destroyed, and so distressing was the prostration of her strength, and the dread of the pained side being in the slightest manner touched, that she could scarcely bear to be moved in her bed. She had taken the opinions and prescriptions of various eminent physicians, without experiencing the relief which might reasonably have been expected from the united exertions of great professional abilities. In consequence of this disease assuming the symptoms and character of tic douloureux, I was consulted, when I found her suffering under this excruciating pain in her left side, and a very considerable uneasiness in her right side, about the hypochondrium. Her complexion was rendered sallow by long continued irritation, and by functional derangement, and her voice was scarcely audible from extreme debility; her pulse about 100. The pains in each side appeared to my patient to be of a completely distinct character, the cause and seat being manifestly very different. The intercostal and cutaneous nerves appeared to me the principal seat of this painful and truly melancholy affection; and under the hope and impression that the same mode of treatment which I had successfully adopted in morbid derangements of nerves, situated in different parts of the frame, might produce the same happy effects in the case of Miss B., my patient began the use of the carbonate of iron, in the month of November 1820, and continued it with some few modifications, until the complaint entirely left her, as will be fully and more satisfactorily shown in the following letter, with which Miss B. has very lately favoured me.

My dear Sir, *Mansfield, September* 17, 1821.

I think it my duty, which I perform with the most heartfelt pleasure, and the highest satisfaction, to acquaint you, that after having suffered for more than two years, the most agonizing pain from that truly distressing complaint, the tic douloureux in my left side; this complaint has, through a merciful Providence, entirely yielded to your happy and valuable discovery for diseases of this nature, the carbonate of iron, when every other resource had proved completely ineffectual. At the same time, I think it due to my other professional attendants to state, that I invariably received from them every attention, and every assistance which it was in their power to afford. I commenced taking the carbonate of iron on the 4th of December 1820, in the dose of one drachm three times a day; in six weeks, I happily experienced a trifling amendment in my side, which of course gave me the greatest encouragement to persevere in the plan you had so judiciously recommended. From that time, my improvement was gradual, (on that account, I imagine, the more satisfactory), and in February last, I had the inexpressible delight of communicating to my beloved family, the agreeable intelligence that I was perfectly free from the pain in my side, which I had not been previously able to say, even for a minute, during the last two years and a half. It is, my dear Sir, a source of great joy to me to have it in my power to assure you, that since that period I have not experienced any recurrence of pain, and that I now remain perfectly free from any, the remotest symptom of this cruel disorder. I continued the use of the iron six months, three times a day, in the quantity of a drachm to each dose: I then reduced the quantity to two powders in the day, and after some time to one, which one I took for three weeks: I then wholly omitted the medicine for a fortnight, and resumed it for fourteen days; and which I continue to do to this present time, alternately using and omitting it. I feel extremely solicitous that the statement I have given, may act as a stimulus to others, who are unfortunately suffering from this distressing disease, to have recourse to the carbonate of iron, administered in the manner you have recommended; for I can with great truth assert, that my recovery is considered wonderful by those of my family who witnessed my extreme sufferings; indeed, they were so acute, that at times I could scarcely wish for a prolongation of my existence: But I feel well aware, that I am incompetent to give that description of my sufferings which this important subject demands. I have not words, my dear Sir, to express my gratitude to you, for thus affording me relief in a malady so truly distressing; for it is to you that myself and family are so highly indebted for my restoration to health; and be assured, my dear Sir, so long as we live, we shall ever feel truly grateful to you. Believe me to remain, my dear Sir, with much respect, your sincerely obliged

E. B.

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PART I.

ORIGINAL COMMUNICATIONS.

I.

On the Sporadic Abdominal Typhus of Young People. By HERMANN AUTENRIETH,* M. D. Tubingen.

HAVING once more suddenly lost one of my acquaintance, I do not think it uninteresting to give the outline of a disease which, in the south of Germany, sweeps off every year many in the spring of life. As I have several times had the opportunity of observing and of treating such cases, and as I was seized by this disease myself some years ago, I hope more strictly to adhere to truth, although my absence from home will allow me to give but a faint sketch, taken from memory.

This disease, which was formerly confounded in Germany with true Typhus, or with *Febris mucosa*, & cet., and which has been more distinctly defined and examined first by my father, might also occur in other countries, though not attended to, or concealed under a different name. I therefore think it of importance to call to it the attention of the British medical profession; for, whatever influence the climate, manner of living, & cet., may have upon the external form of diseases, their peculiar nature ought to remain the same under all circumstances. The abdominal typhus, which presupposes rather an unusual degree of irritability, and a greater want of vital tenacity in the individual who is liable to the attack, is, for these very reasons, less common among the lower than among the higher classes of society; and it generally occurs either during, or shortly after the years of puberty, in both sexes; but, as far as I know, more frequently among males.

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* The Editors publish this Communication exactly as they received it, without even a verbal alteration. In their opinion, it would have been injured by any attempt to correct the foreign idioms; and they feel confident that, as the composition of a German who has been but a few months in this country, the accuracy and perspicuity with which the accomplished author expresses himself will be admired. With regard to the difference of the opinions advanced by Dr Autenrieth from those generally received in this country, no apology is necessary, as one of the objects of the paper is to make known the view taken of an important disease by the physicians of another country, where medicine is zealously cultivated.

During my academical education, I have seen many a distinguished young man sacrificed to this insidious disease, in which some patients, without showing more striking symptoms than others, seemed, from the beginning, to be as it were devoted to death; and, in such cases, no mode of cure has as yet been found adequate to stop the undermining of the vital powers and the threatening palsy. *

Although the symptoms of the abdominal typhus are nearly the same as those in some forms of the true typhus, yet the disease which I shall describe is essentially distinguished from the latter, by arising independently of any contagion—by the particular time of life in which it spontaneously occurs—and by the seat of the complaint being the nervous system of the abdomen rather than the brain; so that the patients generally are in a tolerable possession of their mental power to the last moment of their life, if they die of the original affection.

On the other hand, it passes sometimes into the true typhus, becomes contagious; and then the individual who has passed through it is generally protected against the attacks of the contagious typhus; the latter, however, does not seem always to protect against the sporadic attack, as I myself had been seized a few years before by a contagious typhus, though not quite distinctly marked.

The symptoms of the abdominal typhus are the following. Generally a refrigeration after exposure to heat is followed by a long incipient stage. The patient evinces a striking change of countenance, which becomes peculiarly pale. This change may occur quite suddenly, as was the case with me. Having, on

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* In Britain, *Palsy* is employed to denote only a defect of the powers of the muscular organs, in consequence of interrupted nervous influence; but in Germany *Palsy* is under a much more general sense, and is applied to the loss of action from defect of nervous power, in whatever organ it occurs, whether muscular, membranous or glandular; and thus they speak of a palsy of the lungs, liver, kidneys, &c.—This sense of the term *Palsy* must always be kept in view in reading Dr A.'s communication.—Editors.

a natural history excursion in summer become chilled by a cool evening air, I betrayed this alteration of features to my companion in the moment of leaping over a ditch, without however perceiving any considerable change myself. This is soon attended by a headach over the superciliary ridge of one eye, or by a dull pain along the base of the cranium and in the occiput, often accompanied by some degree of intolerance of light. Weakness, oppression, want of appetite, and disturbed sleep, are collateral symptoms; but a vomiting followed by a dull pain between the stomach and navel is quite characteristic. The pulse is natural except in the afternoon, when a slight fever, with little heat, arises; then it is rather wiry; the tongue has a whitish fur. This state lasts several days; but on the 7th or 10th day the nervous stage generally comes on, frequently after a perspiration. It begins by syncope, delirium, or other symptoms accompanying the common typhus. I was affected at first by *subsultus tendinum*, and my head was at this time quite free from oppression, so that I was, with some exertion, able to read. The pulse becomes quicker during the exacerbation, *calor mordax* arises, and every second day a depravation of the symptoms is clearly perceived. But soon after, on the 7th, 9th, or 11th day of the disease, the principal symptom, viz. a watery diarrhœa appears, being the consequence of a low inflammatory state of the intestinal canal, which however approaches more and more to palsy. If the patient, who lies in a great weakness, takes any drink, a peculiar gurgling noise is heard, as if the fluid was poured into a lifeless bag. The belly is sometimes hard and swelled, and if pressure is applied by the hand to the navel, or to the epigastric region, the patient moves always, from a feeling of uneasiness, the muscles of the mouth. But contrary to expectation, all vital strength fails suddenly, the countenance becomes hippocratical, the skin takes a bluish hue, the eye becomes dull, the *calor mordax* passes from one part of the body to another, and the patient dies between the 11th and 17th day from the beginning of the disease, sometimes affected by a distressing anxiety, without however showing any considerable concentration of the disease upon any important organ.

This is the course of the disease, when very fatal, and, as has been observed before, it is often determined as such from the first stage of the complaints, without being indicated by any peculiar symptom; the event of which seems to depend solely on the degree, in which the patient is incapable of the reproduction of the vital power. But if the course of the disease is more favourable, and if the patient approaches to recovery, which however is still doubtful, wandering concentrations of the disease upon other organs take place, viz. upon the head, the thorax, the larynx, the urinary system,—in females upon the uterus, & cet.; and the symptoms rather resemble those of the true typhus. If the brain becomes the seat of the complaint, a more constant delirium ensues, accompanied by deafness, which however is a better symptom in this stage, than acuteness of hearing; the patient lies with his mouth open, with a troubled, yellowish countenance, and gives distinct answers only when loudly cried to; but he relapses immediately into his former state.

Some time after, the head may become more free, and the chest is seized; the patient is tormented by spasms of the thoracic muscles and palpitation; the pulse is irregular and intermittent; he spits blood, and sometimes (as was the case with myself) a grass-green mucous matter, which is always a sign of a very deep affection. Often there is a burning sensation under the sternum and considerable anxiety; the patient strives to get out of bed; he moans indistinctly, and, when recovered, he suffers then from complaints of the chest for many a year. It is however remarkable, that this typhous process is entirely contrary to the hectic, as, notwithstanding all subsequent spitting of blood, oppression of the chest, & cet., the complaint never ends in consumption; nay, what is more singular, a friend of mine, who was seized by the abdominal typhus shortly after myself, and who was before subject to a hectic fever and an expectoration of pus, was, after his recovery, altogether freed from this consumptive affection, and got the most healthy appearance imaginable. The larynx also, on account of the abundance of nerves with which it is furnished, is frequently attacked by this wandering disease, and then it remains for many years in a morbid state, which is manifested by a pain, occasioned by touching of the part, and by an intolerable irritation, arising often quite suddenly, without being produced by any visible cause. At the same time the individual periodically throws out, merely by cleaning his throat, compact and almost cartilagineous masses of the size of a small pepper seed, with stripes of blood in the spittle. If the urinary system is affected in consequence of this disease, the urine, which during the whole attack is more or less colourless, but sometimes quite natural, is secreted very sparingly, and often flows out involuntarily; but generally the water is made with a pain in the region of the *collum vesicæ*.

During the whole of this period, particularly towards the end, the patient becomes very meagre and emaciated; there is want of appetite, and even reluctance to eat; and during his *stupor*, he often forgets to drink, although it gives great alleviation; but when the brain is less oppressed, when the patient is attentive to his wants, and able to express them, he often complains of an urgent thirst, chiefly if the chest is affected. The skin, as in the contagious typhus, is dry and shrinks; the tongue is covered with a fur, first yellowish, but afterwards brownish, and having the appearance of being burnt in; the lips have a brownish red crust. The pulse is small, contracted, and rather hard; and the mass of the blood tends, towards the end of this stage, to dissolution, distressing hæmorrhages from the nose being not uncommon. In one case which I treated, blood was discharged along with the fæces; and bluish suffused spots appeared at the elbows, like those in the *morbus maculosus* of Welthof; the patient however recovered.

At last, after a period generally lasting several weeks, critical evacuations take place; this was, as far as I remember, the case with myself about the 60th day. The first of these is a partial perspiration generally of the face; in consequence of which, the fur of the mouth and nostrils scales off; in other cases, the perspiration is altogether confined to the chest. By and by, however, it becomes more general; and sometimes it is so profuse, that, in my case for instance, it passed every morning through a featherbed and thick hairmattress, and made mouldy the straps lying below. The urine has soon a sediment; there is also a considerable expectoration; and the stools, which, after the disappearance of the diarrhœa, were very few and hard, become now pulpy and excessively copious, which is the common critical phenomenon in all typhous processes. All the cavities of the body seem to be peeled.

But still there is a great irritability of the constitution; the smallest noise flutters the patient, who is in a degree of childishness, loses his memory, and still talks sometimes incoherently. As nature has little strength to expel the matter to be removed, there is always a tertian relapse, with fever paroxysms and with sleep, giving no refreshment; and not uncommonly ensue fatal relapses, chiefly occasioned by overloading the stomach, which happens very easily, as the patient is soon tormented by an unsatiable hunger and longings of various kind.

At last the fit of the abundant perspiration, which took place every morning, appears at two different times in a smaller quantity, and does not more weaken the patient, but gives a comfortable sensation. Now purulent depositions come on, imposthumes, abscesses, and the patient complains of pains in the extremities; both these are sure symptoms of perfect convalescence. Finally, the body regains strength, at the same time that the muscles increase in volume; and this takes place very soon, as might be expected, from the sound appetite of the patient.

A strong sexual desire, which was altogether passive during the illness, indicates the complete recovery; with this activity of the sexual system the bodily development of the young individual is very rapidly finished.

The disease, with me, lasted fully three months, which surpasses, however, the common duration. But long afterwards the individual suffers the consequences of this insidious disease, in proportion as some important organ had chiefly been affected; in my case, the chest remained in a morbid state; in others, there is a tendency to headach, often lasting during the whole life, and occasioned perhaps by a slight effusion in the cranium. The abdomen, also, is sometimes deranged in consequence of the disease, which gives then occasion to hypochondriacal and other gastric complaints.

In the dissection of the patients who die during the abdominal stage of the disease, viz. from the 11th to the 17th day, there is found a peculiar inflammatory state of the nerves, principally of those of the abdomen. An exudation of a reddish serum is observed along the fasciculi of nerves; and the medullary substance itself is penetrated by a dark-coloured cruor. The stomach and the intestinal canal, at the same time, exhibit rose-coloured inflamed spots, a phenomenon which takes place in many typhoid diseases (particularly in the spontaneous perforation of the stomach of infants, allied probably to *hydrocephalus acutus*), and which has been more distinctly explained by my father under the name of *Inflammatio neuro-paralytica*. But if the patient dies in a later stage, most of the other appearances, which take place in the contagious typhus, are generally found.

From all that has been said it appears, that the nature of this disease consists in a low inflammatory condition of the nervous system, and in the beginning chiefly of the abdominal nerves. This is evinced partly by the dull pain occasioned by pressure on the epigastric region, and by the vomiting connected with it, and partly by the appearances of the abdomen in dissection, mentioned above. On the other hand, however, this inflammatory state has a particular tendency to cause palsy, principally of the abdomen, which is manifested not only by the almost lifeless state of the intestinal canal during the diarrhœa, but also by the frequent tympanites. If now all the reproduction of the vital powers is destroyed by this affection, the life holds out only so long as the sum of already existing vital power lasts; and whenever this is exhausted, the patient sinks suddenly and unexpectedly. When, however, the tenacity of life is more considerable, and not overpowered by the first attack, by degree a metastasis of the morbid process from the innermost systems to the more external may occur, and recovery is more likely to ensue. But as by the deep affection of the nervous system its influence upon the proper composition of the blood is disturbed, the vascular system is scarcely able to produce completely the critical evacuations at one time, particularly as the matter to be expelled is by experience shown to be present in such an enormous quantity. The recovery, therefore, is but slow, and is effected rather by *Lysis*, as it is called, than by *Crisis*. From this it may naturally be concluded, that a cure can be effected only in those cases, in which the possibility of a continuing reaction of the body upon the disease has not been cut off from the beginning, which, I am sorry to say, is but too often the case; and the principal tendency of the treatment must consist in avoiding as much as possible the concentration of the disease upon a principal organ, always keeping our attention to the imminent palsy, and in gently assisting the evolution of the disease upon the more external systems, till the typhous process reaches the secretory systems, by which critical evacuations are commenced. If, on the other hand, the manner of proceeding is too rash and bold, it serves only to exhaust the small sum of present vital powers, and to cause a certain fall.

The following remarks comprehend, what experience in the present state of knowledge of this object recommends as the best and most secure way of cure.

The age of the patient, as well as the general slight inflammatory state in the beginning of the disease, requires bleeding; which, however, in the south of Germany at least, must be very moderate (only ℥ vi–viii.) If too much blood is drawn, the strength fails altogether, and palsy is directly induced, or the recovery is at least rendered difficult and slow. But as, on the other hand, a low inflammatory state still continues, strict attention ought to be paid to it; and here a continued rubbing of *unguentum mercuriale* on the abdomen (ʒ ii–iii a day), is by experience shown to be peculiarly useful; for as long as an inflammatory state exists in the body, the bad effects of mercury need not to be feared, and salivation never ensues. This antiphlogistic effect of mercury may perhaps be explained by supposing, that on account of its tendency to the hepatic system, it opposes an increased formation of hydrogene in the body to that of oxygene, which is heightened in the inflammatory state, and thus restores the equilibrium in the constitution. Internally only mild remedies ought to be given, such as *Althæa*, and, occasionally, a little *Cicuta* or *Hyosciamus*, if the vomiting of the patient is too troublesome. This method is continued till the proper nervous stage has arrived, in which the watery diarrhœa is the most distressing symptom. Fortunately we possess a remedy almost specific against this dangerous affection, which generally yields neither to opium, nor the strongest astringent remedies of the vegetable kind, when employed alone. This is the *Muriate of Iron*, to which, however, in very obstinate cases, the *Oxyd of Iron*, and even *Angustura vera* must be added. It is continued (℈ ss—i. a day) till the stools coloured by the iron appear of a black hue, when the fears of abdominal palsy cease. It ought, however, to be given with caution, as it occasions sometimes a kind of tympanites; but the latter is in such case relieved by clysters.

The rubbing of the mercurial on the abdomen, to which afterwards *Linimentum volatile* may be added, is now to be omitted, if there is no more fear of inflammation; and *Oleum Hyosciami coctum* is advantageously substituted for it.

Besides, mild diffusible stimuli are given internally, such as infusions of *Flores Arnicæ*, of *Radix Valerianæ*, *Rad. Angelicæ*, (the latter, particularly, if there is any apprehension of an attack upon the chest), or of *Flores Chamomillæ*, if there is a greater tendency to dissolution. Often the addition of an Aether, having a free acid, (such as *Spiritus Nitri dulcis*), becomes necessary; but we must be moderate in the application of stimuli, partly in order to avoid a new inflammation, partly because we are often obliged to augment the stimuli in the debilitated state during the convalescence.

If there is no more danger of the patient dying of abdominal palsy, yet it is necessary to hinder the concentrations occasioned by the wandering of the disease, which seem also often to be attended in the beginning by a low inflammatory state, as was the case before in the abdomen. In affection of the head, we apply cold cloths, leeches, and blisters; if, however, the wound produced by the leeches bleeds so long, that there arises a fear of distressing consequences, (a frequent case, by the greater or less tendency of the blood to dissolution), a stopper made by two or three twisted threads of linen is to be pushed in the wound, by which means the flow of the blood is instantaneously stopped. But if effusion in the cranium has once taken place, *Digitalis* is the only, but, I am sorry to say, a very uncertain refuge.

In concentration upon the chest small blisters are of use, one every day; internally an infusion of *Rad. Angelicæ* with *Julapium e Camphora acetosum* and *Benzoic acid* (this remedy has in general a most favourable effect in any state of the chest, tending both to a low inflammation and to palsy); where the pulse is very weak, *Seneka* with *Althæa* may be given. The greatest relief, however, during the affection of the chest, I found in eating *fresh Grapes*, which a sort of instinct had led me to taste; the most distressing symptoms of disturbed respiration were by them alleviated in a short time; and the same favourable effects were produced in other patients. Other fruits gave far less refreshment; plums, however, were rather better than apples.

If singultus should appear, leeches ought to be applied to the left hypochondric region, if it is the sequel of an inflammatory state of the cardia; when, on the contrary, there is no inflammation to be discovered, internally small doses of Opium, and externally blisters are of use; but if the singultus is occasioned by an exhaustion of all strength, repeated doses of *Musk* with *Aether* are to be given.

An emulsion of *Camphor* with *Semen Lycopodii* (the latter in general seems to have a specific calming effect upon the urinary system), and externally a mixture of *Linimentum volatile* and *Oleum Hyosciami coctum* with *Camphor*, are of great advantage in alleviating the greater or less retention of urine.

In costiveness clysters must be had recourse to; and all purgatives ought to be avoided during the whole disease, for any of them in such cases creates a fatal determination to the abdomen.

Wherever at last the blood has a tendency to dissolution, *Mineral acids*, namely, in such a preparation as the *Elixirium acidum Halleri* exhibits, and even *Bark*, or rather *Radix Arnicae*, because it constipates less, become necessary, besides the diffusible stimuli mentioned above.

This is the treatment which, combined with attention to fresh air and cleanliness, and sometimes with washing of the dry skin with lukewarm water, is indicated in the nervous stage; and which, if, as was said before, the reproduction of vital strength has not been undermined at the beginning of the disease, is shown to be almost sure, when applied with sufficient judgement.

Another plan must be pursued after the period of the critical evacuations begins; all danger, however, is not over at that time, for fatal relapses are not uncommon. A strict attention to the regular progress of the critical discharges is now the most desirable object; the strength of the body must therefore be raised by a cautious application of tonic remedies; the morbid irritability ought to be allayed, and the secretory organs must be kept open; but rather the skin and urinary organs, than the lungs and intestinal canal, because the latter afford a dubious and dangerous evacuation. The skin should always be kept moist; but cold must be carefully avoided, as it is often followed by secondary palsy.

Careful attention also is to be paid to a moderate gratification of the appetite, as an overloading often takes place, and may even occasion palsy of the stomach. In such cases *Magnesia* is of great use, and in cases of necessity even Emetics, such as *Ipecacuanha*, may be given; when, however, there is any fear of palsy of the stomach, we are obliged to have recourse again to blisters.

At last, an airing in a carriage in fine weather completes quickly the recovery, as I have myself experienced.

But for a long period, the individual suffers under the consequences of this terrible disease, of which an affection of the chest is the most common. Only a considerable stay in the pure air in the high valleys of Switzerland freed me entirely from the tormenting oppression of the chest, and the frequent spitting of blood, under which I had laboured a whole year.

This is a sketch of a disease, which, notwithstanding its destructiveness and its comparative frequency, has not been, as far as I know, treated of in any work, and a more exact and comprehensive description of which may be expected from the hand of my father, if time and circumstances permit him to publish the results of his great experience on this subject. As it is very likely that the same disease exercises its deleterious effects in other countries also, the present Essay, although very incomplete, might be excused from the view with which it was undertaken, viz. to open a way as soon as possible for improvement in the knowledge of the disease and its cure. If, therefore, by the present attempt, I should be so happy as to excite the attention of the British medical Profession to this object, I entertain the hope, that in a short time the science may be enlarged, and my design completely attained.

Edinburgh, 14th February, 1822.

II.

Short Account of the Varioloid Epidemic which lately prevailed in the Town of Wick and its Neighbourhood. By James Innes, M. D. Addressed to Professor Thomson, and communicated by him to Dr Duncan, junior, Professor of Materia Medica in the University of Edinburgh.

MY DEAR SIR,

I should, long ere now, have communicated to you the result of the observations I have had an opportunity of making upon the Varioloid Epidemic that prevailed so very generally in the county of Caithness, and more particularly in the Eastern district of it, during the course of the winter 1820–21, had not professional avocations occupied so much of my time. Aware, however, how much interest you take in every thing connected with the history of smallpox and other varioloid diseases, I feel unwilling to leave this country without giving you a brief account of the symptoms and appearances of the Epidemic.

I have been informed by my brother practitioners, some of whom have resided in this place for upwards of twenty years, that smallpox have not prevailed epidemically during the last ten or fifteen years. In the beginning of the winter 1820, I was called to visit a young man affected with natural smallpox in a somewhat confluent form, from which he with difficulty recovered. On inquiry, I learned that he had arrived but a few days before from Leith, and that, when there, he had resided with a family, all the children of which had recently passed, or were passing through smallpox. From this young man's case may be dated the origin of the epidemic in this part of the country; and it is inconceivable with what rapidity it spread, attacking a great proportion of the unprotected, and not a few even of the vaccinated. I shall endeavour to state the results of my observation of this disease, in the form of answers to the queries which you some time ago circulated through the medium of the Edinburgh Medical and Surgical Journal.

Query 1. *Have you ever had occasion to see chickenpox prevailing epidemically, without cases of smallpox occurring among them?*

Ans. From the shortness of time that I have been in practice, I cannot give a satisfactory answer to this query. I may however remark, that during the four years I have practised in Caithness, chickenpox have not prevailed there.

Query 2. *Have chickenpox appeared to you to attack those who have not had smallpox or cowpock, as frequently as those who had passed through these diseases; and have you remarked any difference in the appearance of the eruption in these three several classes of patients?*

It was chiefly in those individuals who had either passed through cowpox or smallpox, that the varioloid epidemic was observed to assume the form of chickenpox. In six or seven cases, however, of unprotected individuals, the eruption exhibited this character.

Query 3. *Have any examples occurred in your neighbourhood of persons having had the smallpox twice? and did it appear, in those instances, that the disease was less severe in its second than in its first attack?*

I saw *seven* cases of the varioloid disease occur in individuals who had previously passed through smallpox. In one of these cases only, had I an opportunity of observing the disease during both attacks. As this case struck me very forcibly at the time at which it occurred, and appears to me to point out, in so decided a manner, the identity of the contagions of the varioloid disease, as it occurred in the vaccinated and in the unprotected, I shall mention the particulars of it. A short time after the appearance of smallpox, a boy of about seven years of age, who had neither been vaccinated nor had passed through smallpox, suffered an attack of an eruptive disease, precisely similar, in the mildness of its symptoms and shortness of duration, to the disease as it occurred in the vaccinated. In other words, had the boy been protected either by previous smallpox or cowpox, I would have had no hesitation in calling it chickenpox. The mother flattered herself that her son had passed through a disease which would effectually protect him against a subsequent attack of smallpox; but in about three weeks after his recovery, he was again seized with a febrile attack, followed by a copious eruption of smallpox of the coherent kind, from the effects of which he had scarcely recovered after the lapse of three or four months. In the same family, there were other six children, all of them unprotected. During the time that the boy passed through the first attack of smallpox, none of them were affected; but, shortly after the second, each of them passed through the natural smallpox in different forms.

Of the other six patients affected with secondary smallpox, two had passed through inoculated, and the remaining four through natural smallpox. The secondary affection in the former was represented to have been equally mild with the inoculated smallpox; and in three of the latter, the primary eruption was reported to have been more severe than that under which I saw them labouring; but in the fourth, an old woman of sixty years of age, who, during the first attack of smallpox, lost the sight of one of her eyes, the secondary attack was more severe than in any of the other five.

Query 4. *Has a varioloid disease occurred to your observation in persons who had passed through regular cowpock inoculation; and in the instances in which they have occurred, whether has this disease appeared to you to resemble more chickenpox or smallpox?*

Ans. The varioloid disease attacked from four to five hundred individuals, who had been vaccinated. The eruption, in much the greater proportion of these cases, was preceded by smart fever of from 36 to 48 hours duration. The eruption itself was generally papular in its origin. The papulæ became vesicular or pustular on the second, and began to decline on the fourth or fifth day after their appearance. The three forms of eruption which the disease assumed in this class of patients, were *hornpock*, *vesicular eruption*, and *pustular eruption*. Of the first of these forms, which constituted nearly eight-ninths of the vaccinated who were affected, the eruption sometimes disappeared without becoming either vesicular or pustular, and, at other times, it became first vesicular, and then pustular; and in many cases papulæ, vesicles, pustules, and horny scabs might be seen upon the same patient at the same time. In about 30 cases, the eruption appeared to be purely vesicular from its commencement to its termination; and in *ten* cases only did the disease assume an aggravated form,—in these, the eruption was similar to that which you have described in your "History of the Varioloid Epidemic in Edinburgh," under the denomination of Coherent Smallpox. I beg to observe, that, in the individuals who were the subjects of these cases, although the vaccine cicatrix was perceptible in all of them, yet that the vaccine virus did not seem to have acted upon the constitution,—the cowpox vesicles having run their course, without either apparent febrile symptoms, or affection of the axillary glands.

Query 5. *Has this varioloid disease, when it has attacked those who had been vaccinated, proved in any instance fatal?*

Ans. It is most satisfactory to me to be able to inform you, that of the vaccinated who were attacked with the varioloid disease, no one fell a victim to it. With the exception of the ten cases to which I have alluded in my answer to the fourth query, the disease was mild. And though the operation of vaccination in this part of the country is very frequently performed by itinerant practitioners and midwives, with no great nicety either in the choice of the virus or the manner of introducing it, in every instance in which a cicatrix was visible, the beneficial effects of the previous vaccination were obvious, and in nothing more remarkably so, than in the total absence of the secondary fever, even in the few cases which most nearly resembled the natural smallpox.

Query 6. *What were the usual symptoms of this disease in those who had not passed through smallpox or cowpock? Were they those of smallpox, or of the disease which has been termed chickenpox?*

Ans. I have already mentioned that the varioloid disease, as it attacked those protected by vaccination, resembled, in its symptoms and appearance, chickenpox more than smallpox. But I believe it would be more correct to say, that while it did not resemble smallpox in severity, so, neither could the symptoms and appearances be said to be those which have been, by many authors, ascribed to chickenpox. The eruptive fever was uniformly more severe, the variety in the number and contents of the pustules much greater than in chickenpox; and, in fact, in most cases the disease appeared to me rather to be a *tertium quid*, than either the smallpox or chickenpox of practical authors.

Query 7. *In what proportion of persons attacked with this disease, who had not been vaccinated or variolated, has it proved fatal?*

Ans. Being uncertain of the actual number of unprotected individuals who were attacked with smallpox, I feel myself unable to say, with any degree of precision, what the proportion of deaths was, in this class of patients; but the epidemic appeared to me to be a very severe one, and many of the oldest parishioners in Wick declared that they never had known the smallpox more fatal.

Query 8. *Have you had occasion to see any instances of modified smallpox, or the disease which has been termed chickenpox, occurring oftener than once in the same individual?*

Ans. I have never had an opportunity of seeing either of these forms of varioloid eruption occur twice in the same individual.

Query 9. *Does the general description which I have given of the varioloid disease, in the three different classes whom it attacked in Edinburgh, agree with that of your observation; or in what respects does your observation differ from mine?*

Ans. Were I to attempt to draw out a full account of the varioloid disease as it occurred in the three different classes of patients whom it attacked, I am convinced that no description which I could give would be better calculated to convey to you an exact idea of it, than that which you have so ably communicated in your valuable treatise on varioloid diseases. With few exceptions, your observation coincides with my own. In the great majority of the unprotected, the eruption assumed the more common forms of smallpox, viz. the distinct, the coherent, and the confluent forms. Those varieties of the disease which you have described under the names of vesicular and vesiculopustular smallpox were not so numerous as they appear to have been with you in Edinburgh. Those who laboured under the *distinct* smallpox all recovered. In several cases the eruption left behind it permanent pits, and in others blains only, which soon disappeared. The *coherent* smallpox was frequently very severe, and, in many instances, fatal. The throat was in most cases severely affected, and in a few instances the patients were attacked with hæmoptysis. Almost all who were attacked with the smallpox in its most aggravated form—the *confluent*—fell victims to the disease. No description can convey an adequate idea of the dreadful appearance which these patients exhibited. In all of them, besides the pain necessarily attendant upon such a loathsome cutaneous disease, pectoral symptoms of the most distressing kind supervened, accompanied, in some cases, with copious hæmorrhage from the lungs and nose, bloody stools and urine. In one case of this description, the patient died on the 4th day after the appearance of the eruption. The period, however, at which death usually occurred in the two last classes of patients, was between the 12th and 15th day. In several cases, in which I had an opportunity of seeing the patient previous to the appearance of the eruption, I observed a rash of a rubeolous or scarlet colour, which disappeared when the papulæ came out.

Query. 10. *Are you acquainted with any facts which tend to disprove the hypothesis, that smallpox, chickenpox, and modified smallpox, may all arise from one and the same contagion?*

Ans. So far as my observation goes of the varioloid epidemic which lately prevailed in Wick, every fact, instead of disproving, tends amply to confirm the hypothesis which you have suggested with respect to the identity of the contagions of smallpox, of chickenpox, and of modified smallpox. I have very frequently observed, in individuals living under the same roof, the epidemic assume every possible form of the varioloid disease—confluent smallpox in one—coherent smallpox in a second—distinct in a third—the vesiculo-pustular in a fourth, and the pure vesicular disease in a fifth—though the latter form of eruption occurred chiefly in the vaccinated. The parents who were familiar with the appearances of the natural smallpox, were at first at a loss to conceive what kind of a disease had come among them in the form of modified smallpox; but they soon became convinced, that all the varieties of the disease arose from one and the same contagion, and that it was to the beneficial effects of vaccination that those who had passed through that process had the smallpox in an "*easy form,*" as they termed it, while the unprotected were labouring under the more aggravated symptoms of the disease.

In conclusion, I shall only remark, that the cause of vaccination has not suffered in this part of the country from the appearance of the late epidemic; on the contrary, all classes of the community have become more and more satisfied of its value, and many, even of those who were most prejudiced against the practice, have been forced to acknowledge its utility. *Religious* prejudices, however, against vaccination, have still a powerful influence with many, which even the devastation the smallpox committed in the short space of four months, has not been able to overcome. †

Wick, March 10th, 1822.

III.

Case of Dropsy. By ALEXANDER M'CARTHY, M.D., Physician to the West Carberry Dispensary, County of Cork.

I SUBMIT the following case, as one that conveys some practical facts as to the management of this very intractable disease. The subject of Dropsy has engaged the pen of some of your very able correspondents, and, no doubt, has received much elucidation from its discussion. The remarks of the ingenious Dr Abercrombie are particularly instructive, and his observations on diseases in general of great practical importance.

Avoiding all theory, I submit the following case from the Dispensary books, and am satisfied that the cure, in this case, may be chiefly attributed to the remedial powers of fox-glove and mercury. The former very active agent I have found of great assistance in serous effusion; and the remarks of Dr Halloran of Cork place its powers in mania beyond question. In pulmonary affections, particularly with high excitement, I have always been disappointed, and never observed any advantage from it. I have therefore relinquished its use altogether in phthisis pulmonalis.

Mercury is a remedy now very much employed in this country; and the careful observer will have to consider it, in many instances, a powerful agent in the cure of disease. Yet it requires the greatest caution in discriminating the affections, and the subjects to which it is applicable; but, in certain stages of the fever that is so common in this country, there is no dispensing with calomel; and, under the management of the experienced practitioner, calomel will be found to be equal to all the praises bestowed on it by the eloquent and talented Dr Armstrong.

I have met with many cases of obscure affections of the lower viscera of the abdomen, which are both tormenting and intricate to the young practitioner; they have occurred in young female subjects, convalescent from fever, and in those who labour under various anomalous nervous symptoms, from obstructed catamenia. Medical writers, as far as my reading goes, are extremely defective, and often injudicious, on this subject. Steel, tonics of various kinds, horse-exercise, and attention to the biliary secretion, form the usual routine of practice. But I have been greatly disappointed in tonics, and stimulants of all kinds; and, by turning my attention to the French writers, I have really much reason to be satisfied with their mode of treatment. I always apply leeches to the lower belly with great advantage; and, by steadily persevering in this practice, with mild aperients, and the hip-bath, I have succeeded in checking the most distressing symptoms, which before were aggravated by stimulants and tonics.

The most distressing spasmodic affections have yielded to this line of treatment, when the various antispasmodic remedies proved useless, if not injurious.

June 11th, 1821.—Daniel Mahony, ætat. 24, about a fortnight past was exposed to much cold, and immediately after was attacked with an enlargement of the abdomen. There is a fluctuation evident, and his legs pit on pressure. Pulse 90, sharp; tongue white and furred; bowels natural; urine high coloured and scanty.

Fiat venæsectio ad ℥xij.

℞ Pulv. jalapii comp. ʒij. G. gambogiæ gr. xij. Submur. hydrargyri gr. vi. Syrupi q. s. ft. boli No. iij. Capt. un. alternis noctibus.

℞ Tinct. scillæ ℥ss. Capt. gts. viginti, ter in die, cyatho aquæ fontis.

21st June.—No improvement in his symptoms. The effusion in the abdomen increased, and immense collection in the tunica vaginalis testis. Countenance very anxious and cadaverous; pulse 120; tongue clean; appetite moderate; urine very scanty; bowels bound, notwithstanding the use of the purgatives.

The operation of tapping was performed on the abdomen; ten quarts of serous fluid were quickly discharged, and the scrotum was freely scarified. His breathing was relieved after the operation.

℞ Ungt. hydrarg. fort. ℥x. Divide in chartas viij. Affricet unam interno femori omni nocte.

℞ Tinct. digitalis purp. ℥ss. Capt. gts. xx. bis in die, cyatho aquæ puræ.

℞ G. gambogiæ ʒi. divide in pulveres iij. Capt. un. alternis noctibus. Inter. alia medicamenta.

28th June.—There is a considerable improvement in all the symptoms. The effusion has entirely left the scrotum; the abdomen is still tumid; countenance improved; pulse natural; urine more copious; the powders opened his bowels moderately; mouth not sore. Cont. tinct. digitalis ad gts. xxviij. ter in die.

Inter. pulveres.

℞ Crystallor. tartar ℥j. Pulv. jalapii ʒij. Zingiberis ʒi. Syrupi q. s. ut ft. elect. molle, cujus, capt. cochl. parv, ter in die. Affricet molem nucis moschatæ linimenti hydrargyri comp. abdomini omn. nocte hora som.

July 6th. The abdomen is again distended with fluid; gums sore; has had a considerable degree of purging; urine free, and not high coloured; strength not much impaired; appetite bad; no sleep at night; pulse 108; tongue white and furred; countenance pallid; thirst.

Ten quarts of water was this day evacuated from the abdomen with the trocar.

℞ Infusi quassiæ ℔iss. Carb. potassæ ʒiv. M. Capt. cyathum vinosum ter in die.

Cont. elect. crystallor. tart. et inter. liniment. hydrarg. A glass of gin punch at dinner.

10th July.—The swelling is reported not to increase since the operation; great purging; urine copious.

℞ Ungt. hydrarg. camphorat. ℥i. Divide in chartas viij. Affricet un. omn. nocte interno femori.

19th July.—He underwent the operation of tapping again this day, when eleven quarts of water were evacuated; has improved in strength; urine rather copious; bowels free.

Cont. infus. quassiæ cum carb. potassæ. ter in die. Inter. ungt. hydrarg. &c.

℞ Mass. pilul. hydrarg. ʒi. Pulv. scillæ siccati. ℈i. Pulv. Fol. digitalis gr. xii. Opii gr. iv. Gelat. saponis q. s. ut ft. pilulæ xx. Capt. unam mane, meridie et vespere.

21st.—A part of his urine this day submitted to experiment with nitric acid; no precipitate; no coagulation on exposure to a high temperature. According to Dr Blackall, dropsy without coagulable urine.

28th July.—The abdomen is again swelling, but not to so great a degree. Countenance much improved.

Cont. pilulæ et infus. ut antea.

6th August.—His gums are sore, and he is salivated since the 31st ultimo. There is a great improvement in all the dropsical symptoms; urine more copious than usual; bowels rather costive.

Cont. infus. quassiæ et carb. potass. Inter. pilulæ.

℞ Pulv. jalapii C. ʒij. Divide in pulv. iij. Capt. un. omni nocte.

11th August.—Considerable improvement. Swelling subsiding fast.

Cont. medicamenta.

31st August.—There is every appearance of returning health. Dropsical swelling nearly gone; mouth healed; appetite good; bowels regular; pulse natural; urine free.

Cont. infus. quassiæ. Inter. alia medicamenta.

Dismissed cured.

1822, Jan. 6th.—This patient presented himself at the Dispensary this day in perfect health.

IV.

Effects of an Overdose of Opium. By ALEXANDER KENNEDY, M. D. F. R. S. Ed.

On the evening of the 2d of March 1794, a Mogul gentleman, about twenty years of age, and who had never been accustomed to the use of opium, resolved to poison himself; and, with this intention, swallowed a quantity of opium. I was called at ten minutes before seven, and found that he had taken the opium a little after six o'clock. Upon examining the person who had purchased it for him, I found that the weight of four dubs (a copper coin) had been purchased and delivered to him; and upon searching the tents, a quantity of opium, which appeared to have been well masticated, was found in the place whither he had retired to take the dose. Weighing this, there was a deficiency of one hundred and fifty-five grains of the quantity purchased; and this, I believe, must have been very nearly the quantity he swallowed.

I found him supported by his servants in the erect position, for he was altogether unable to support himself. He had the appearance of the most profound intoxication; and, when first roused, was evidently delirious; but by persevering in our endeavours, he became capable of giving very pertinent answers, though he uttered them with much labour and difficulty. His skin was of a red and inflamed colour (he being a fair man, the son of a native of Persia); and all the veins, even to the minute branches, were uncommonly distended, and had the appearance of being stuffed and gorged with their contents. Besides a pair of wide long drawers, his only covering was a cloth thrown loosely round his shoulders; in which undress, the state of his skin had a very marked and striking appearance.

The only thing of which he complained, was a sensation of intolerable itchiness over the whole of his skin; so that he kept five or six people constantly employed in scratching him. In every other respect, he said he felt himself perfectly at ease. His pulse was from 70 to 80, full and soft.

Having gone provided with a phial of vitriol of zinc, and with scales and weights, I gave him immediately fifteen grains of it, and repeated a dose of ten grains more every ten minutes, till he had taken sixty-five grains. During this time the stupor was increasing, and all his efforts to vomit had been ineffectual. He now, however, by the assistance of feathers, and of the fingers of another person thrust into his throat, began to vomit a little, but it was with great labour and difficulty. What he threw up had a very strong smell of opium; and the surface of it was covered with what was evidently masticated opium. His pulse was still soft, but quick, small, and thready. I now began to be apprehensive that it would not be possible, by any means, to excite his stomach to the free action of vomiting; and, as there was plainly no time to be lost, I gave him, at the end of the next ten minutes, fifteen grains more of the white vitriol, in a pint of warm water, and continued to give him fifteen grains more every ten minutes, administering it with the warm water, until he had taken one hundred and twenty-five grains. He then vomited fully; and I continued administering the warm water, until it was returned without any admixture of the opium. At ten o'clock, I gave him two ounces of Glauber's salts, and left him, having given directions that he should not be permitted to be out of an erect posture, nor to go to sleep, till the salts had operated. Though he was purged briskly during the night, the salts were repeated early on the morning of the 3d; a strong infusion of coffee was ordered for his breakfast, and directed to be repeated in the course of the forenoon, and to use lemonade for his common drink. At eleven in the forenoon, he had still the appearance of being very drunk, but said that he felt himself perfectly free of all complaint, and that he was sensible the intoxication was going off. In the course of a couple of days he was perfectly recovered.

It was very remarkable, that, when the torpor and comatose heaviness were at such a height, that he appeared to have almost no command of any of his muscles, nor the smallest perception of what was passing around him, his hearing was, nevertheless, remarkably acute. We naturally spoke somewhat louder than usual, to a man who was, unless when very thoroughly roused, in a state of delirium, and who had every appearance of being almost totally deprived of all his external senses. This he always found fault with, and reproved; and repeatedly requested, that we would not speak to him louder than usual, saying, that it disturbed him exceedingly.

As, in such a case, there could be no necessity for being very nice in weighing out the medicine, the quantity of the vitriol of zinc which he actually took may well be estimated considerably higher than what I have stated it at.

My memorandum of the case is dated Camp of the Nizam's Detachment, near Yelboorgah, 6th March, 1794.

V.

On the Effects of an Overdose of Digitalis. By THOMAS M. FOGO, M. D. late Surgeon, Royal Artillery.

THE following case may be of use, not only in showing how a large dose of tincture of digitalis completely cured a very severe attack of asthma, in which every means had been tried, including smaller doses of the same medicine, without effect; but to what an enormous extent this drug may be taken, without proving fatal, though certainly not without producing alarming symptoms.

Mr K——, a respectable individual, and schoolmaster of a parish in East-Lothian, was labouring under a very severe attack of asthma when I first saw him, which succeeded a slight pneumonic affection, and for which he had been bled, &c. by my friend Dr Lewins of Haddington. When I saw him he complained of the frequent returns of difficulty of breathing during the day, particularly upon placing himself in a recumbent posture; and of their violence and quick succession during night being so great, as to preclude all attempts to sleep, or indeed to remain in bed. Antispasmodics were inefficacious; Opiates I could not continue, because they induced that disposition to unpleasant visions peculiar to particular habits; Hyosciamus, in large doses, failed of giving even temporary quiet, though variously combined, as with ether, camphor, the camphorated tincture of opium, and others; Emetics had the effect of diminishing the violence of the nocturnal paroxysms, and favouring a quieter night, though far from being followed by refreshing sleep; but such remission I could not venture every night to procure, because the patient was well advanced in years, was much worn out by the want of repose and incapability of taking sustenance, and was becoming œdematous in the lower extremities, the consequence of debility.

His son, a surgeon, conceiving digitalis might be tried, brought a phial of the tincture when he came to visit his father: as I had, however, before given it a fair trial, and the œdema appeared not to arise from any hydropic disposition, the phial was laid aside without further consideration.

On the morning of the 22d August, according to the patient's account, after having passed a most uncomfortable night, the greater part of which he was walking about in great agony, he flew to the place where several bottles were standing, and wishing for relief, without hesitation swallowed the contents of the bottle with digitalis, which, by after measurement, we found to contain exactly *an ounce*, and which his son had procured from an apothecary for that quantity. * This took place about seven o'clock in the morning, as I afterwards understood.

I called at his house about eleven o'clock, when I was told he was asleep; but heard nothing of his having prescribed for himself, and therefore did not repeat my visit till past one, when I found him awake, and quite easy, being then in bed. In the course of my inquiries, he told me that he had to thank himself for procuring his composed state, which my medicines had failed to do; and detailed the draught which he had taken early in the morning. I then found he had fallen asleep almost immediately after taking the dose, slept soundly till half past ten, when he vomited a good deal, and likewise had an evacuation per anum, and very composedly afterwards resumed his bed, and the enjoyment of repose. Upon being satisfied of what he had done, I lost no time in administering a powerful emetic, which operated speedily, and completely cleansed the stomach of its contents; at this time his pulse was 80, and perfectly regular. I saw him again at four o'clock, when he continued in the same tranquil state, and between my visits had enjoyed some sleep; the pulse was as before. I repeated my visit at six o'clock, when I found him quite easy, free from vertigo and nausea, nor had he had any alvine evacuation since I saw him last; his pulse in frequency and strength was much the same, though every two or three minutes there was a slight intermission. I now began to dread the effects of the medicine on the action of the heart, and ordered some strong punch to be made, which was given in divided doses. About half past eight o'clock I saw him again, when the only change observable was in the pulse, which now intermitted more frequently, and the intermissions were longer, though seldom more than one each minute.

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* Dr Lewins was good enough to make inquiry at the shop from whence the medicine was obtained, and he was assured that the tincture was in a fresh state, and made the season before, from leaves gathered at the proper time.

To prevent the sedative effects of the digitalis, I considered the only line of practice to be pursued; though, I confess, I had no great hopes of success in my endeavours, but I was determined to be at hand, and remained by the patient's bedside the whole night. With this view, I began about 9 o'clock to give him repeated doses of the *carbonas ammoniæ*, of which I gave him grs. x. in the form of a bolus; but afterwards changed it for the *aqua ammoniæ*, of which I gave gtts. xx. alternated with ℥iss. of the *ether nitrosus*, every hour. After he had taken two doses of medicine, I began to mark particularly the variations of the pulse, which had now changed much, in the frequency of the intermissions, in their length, and consequently in the number of pulsations during a minute.

As I had dispatched an express for his son, when I began giving the stimulating medicines, his arrival before midnight was satisfactory, for he enabled me to pay all proper attention to his father.

The medicines were administered regularly every hour, and, in the intervals, the patient slept, upon the whole, tolerably composed; and, when he was awoke to take again the draught, always assured us he felt no uneasiness of any kind. The state of the pulse, as noted every half hour, will show how variable it was, even in the course of a few minutes, to eight or ten beats; we therefore preferred stated observations, from which it will be remarked, that the sinking of the pulse was by no means progressive, as would probably have been the case if the medicine had been left to itself; and which variation at times led me to encourage hopes that we might be successful in our counteracting plan, remembering, as I did, the case of a young lady, as noticed by the late distinguished Dr Gregory in his Lectures, whose pulse suddenly was diminished to 28 pulsations in the minute, from the accumulation of repeated doses of digitalis, and who nevertheless recovered by the free exhibition of brandy.

State of the pulse, as noted each half hour.

At	11 o'clock	58	half-past	56
—	12 —	52	—	46
At	1 *a. m.*	42	—	55
—	2 —	43	—	66
—	3 —	42	—	50
—	4 —	45	—	41
—	5 —	36	—	41
—	6 —	59	—	47

At 7 *a. m.*	47	half-past 7¼	72	At 7½ — 48.*
— 8 —	42	—	48	
— 9 —	46	—	53	
— 10 —	69	—	74	Took tea.
— 11 —	73	no intermission	—	
— 12 —	75	—	—	

By 12 o'clock the following day, I considered we had completely counteracted the sedative effects of the digitalis, and therefore discontinued particularly remarking the pulse, though from that time it continued pretty steady; and contented myself with merely prescribing repeated doses of the *mixtura camphorata*, which, however, I intermitted in the course of twenty-four hours, every danger to be apprehended being by that time removed. Since that period to the present time, there never has been the least untoward symptom; and, besides being as it were dragged from the grave, he enjoys wonderful good health, and is able to go about his usual avocations, without any asthmatical affection whatever.

It is a desideratum, how far we may be justified in giving digitalis in large doses in cases of asthma, and to what extent it can be given with safety? From a case which has come to my knowledge, which happened in this county some years ago, where a patient took a tea-spoonful by mistake, in place of paregoric, without inducing any very alarming symptoms; and, from the instance I have now related, it will perhaps be found, that this drug may be given in quantities almost beyond human credibility, and with the happiest effect; while from small repeated doses, more alarming symptoms will be produced than from many times the quantity given at once. Farther observation can only resolve this point.

Fortunate as has been the issue of this case, yet I cannot but regret that I did not see the individual when I first called in the morning; for I might have been enabled to set at rest the long disputed point, whether it first acts as a stimulant? When I did see him, the pulse was the same as it had been for many days before; and, if it had raised the pulse in the first instance, it had returned to its wonted state by that time. Allowing, however, that I had not a fair opportunity of judging, yet I think the facts militate against any such stimulating properties of the foxglove, because, in my idea, the stimulating, ought to have been more quickly succeeded by the sedative, effects: of the latter there is no doubt; but the former is still *sub judice.*

North Berwick, 7th September, 1821.

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* The pulse being at 72 at a quarter past seven, is to be accounted for from his exerting himself in bed, which in fifteen minutes afterwards fell to 48.

VI.

Of the Utility of the Nicotiana Tabacum in some Cases of Phlegmasiæ; as also in some other Diseases where it is not usually employed. By Robert L. Page, M. D. Dundalk.

Case I.—About November last, I was called to see a poor woman of a plethoric habit of body, who had got pneumonia. She had been attended, previous to the time I first saw her, by a respectable apothecary. I found her labouring under the greatest difficulty of breathing; her face almost of a purple colour; skin dry; great anxiety. She could not lie on either side; was obliged to be raised in the bed almost to a sitting posture. Her bowels had been well opened by sulphate of magnesia given her by the apothecary; urine high coloured, with brick-dust sediment, and scanty; pulse strong and hard; tongue quite furred. The day before I saw her, she had lost ℥ xx. of blood from the arm, which gave her no relief.

> *Detrahe unc. xx. Sang. instanter e brachio. App. pect. emp. e meloe vesic. magnum. Habeat haustum e tinct. opii cum tinctura digitalis, nocte sumendum.*

Saw her the following morning; breathing nearly as difficult as the day before. Every symptom, in fact, nearly the same; had no rest from draught; blister doing very well; bowels regularly open; stools fetid and not natural.

> *Detrahe unc. xiv. Sang. e brachio. Habeat solutionem sulph. magnesiæ. Rep. haust. anodyn. ut antea præscript. nocte sumend.*

Was called out of bed to see her same night, her breathing having become so urgent and difficult that the attendants suspected she was dying.

> *Repet. detract. Sang. ad unc. xiv.*

Following day saw her; her breathing, though slightly better, still dreadfully severe; had a little sleep after I had seen her in the night time; pulse 110, hard; bowels open; stools fetid and greenish; the salts had operated well.

> *Detrahe unc. xiv. sang. ut antea.* Ordered for her a saline mixture, with *tinct. opii.*

Day following saw her; breathing still very bad, though certainly better than before; a severe cough had now taken place, which greatly annoyed her; bowels not regular; tongue less foul than before; pulse 110.

> *Repet. detr. sang. ad ℥xij. Habeat bolum e subm. hydr. et pulv. antim.*

Saw her in the evening; breathing still laborious, and much anxiety in the countenance; had two fetid stools; cough very distressing. Finding, on the whole, that the quantity of blood lost, in all 94 ounces, had not given any very essential relief, and knowing that her constitution had been a good one, I formed the idea that it would be desirable, if the constitution could be reduced (and consequently the inflammation) in some other manner than by constant blood-letting, which had been pushed to such an extent; I therefore ordered for her the following enema.

℞ *Nicot. tabac. gr. xxxv. Aquæ bullientis* ℥*xij. Post horæ dimidiam partem cola. Injiciatur infusum statim.*

Saw her, as usual, the following day. The breathing infinitely better; could nearly lie on either side. The injection had made her extremely sick; but, almost immediately afterwards, her breathing got astonishingly better, and was likely to continue so; the pulse 90, and had a pleasant feel under the finger; tongue much cleaner about the middle; the eyes had lost much of the suffusion, and she had sleep for about three hours in the night; bowels quite regular. Ordered nothing for her.

Following day saw her; she still continued greatly better; breathing easy and comfortable; pulse 84; the countenance had lost the anxiety. In a few days, this woman was perfectly recovered.

Case II.—About February last, I was called to see a fine boy who had got *cynanche tonsillaris.* He was about five years old. I ordered an *emp. episp.* to be put round the throat, and ordered powders composed of *subm. hydr. cum jalapâ.* Called next day; the inflammation not better; bowels not opened, though all the powders were taken. I ordered immediately the powders to be repeated, and given as before. A messenger told me in the afternoon the bowels were not better. An opening mixture, composed of jalap, rhubarb, and pennyroyal water, was ordered, the child to get part of it every hour till it operated. Called next morning; no passage in the bowels; got the child put into a warm bath at 96 Fahrenheit's thermometer, and continued him in it for twelve minutes. Immediately afterwards, the child got ʒiv. *olei ricini.* Called in the afternoon, at which time the bowels were as usual, and the throat greatly inflamed. The tonsils and *velum palati* were like scarlet; the child could scarcely swallow.

I instantly ordered the *enema e tabac. nicot.* to be got ready. It was given, (the infusion being very weak). It immediately had the effect of producing four large and fetid stools; the child experienced anxiety and sickness about an hour and a half in consequence of the tobacco; but it soon went off. The inflammation in the tonsils speedily got better; the bowels remained afterwards quite natural; and in a few days the child was perfectly recovered.

CASE III.—About a month ago was called to see a child about three years old that had got febrile symptoms, with a slight inflammation of the chest, brought on in consequence of having taken a large quantity of small fruit. The child's bowels had been in a state of constipation for two days previous to the fruit having been eaten. I ordered a blister to be immediately put on the chest, and to have three grains of the *Subm. Hydrarg.* every third hour, till the bowels were well opened. Called next day to see the child; bowels not acted on by the calomel. Ordered an infusion of senna with scammony, to be given as directed, till it should operate. Called in the evening; no purging had taken place, though the greater part of the medicine had been taken. The breathing at this time was quite bad, and the child had much anxiety in the countenance. I got the warm bath prepared, and had the child kept in it, till debility made it necessary to remove the child to bed. The bowels were, after this operation, as before. Eight leeches were next applied to the chest, in consequence of the difficulty of breathing. This certainly relieved the child; but the bowels being so long in such a state of constipation, I directed, that if before evening no purging took place, to give the enema which I had prepared,—a weak solution of the nicotiana. This was given in the afternoon; it had, as I was inclined to expect, the happiest effect. The bowels instantly got relief; three or four plentiful stools came away, and the child afterwards mended quickly.

If the cases now mentioned show positively the good results of the Nicot. Tabac., it is to be hoped, that in some cases where internal inflammation is making rapid strides to destroy life, this useful narcotic may be advantageously employed. Any other information on this subject that may come before me shall be given.

Dundalk, August 31, 1821.

VII.

Case of Stricture of the Inferior Extremity of the Colon; with two Cases of Stricture of the Rectum. By JOHN PENKIVIL, Surgeon, Plymouth Dock, Member of the Royal Medical Society of Edinburgh.

MRS T., about 60 years of age, had been seized with what was considered an ordinary bowel complaint, a few days before I was sent for. On my first visit, which was the beginning of this year, I was told she had formerly been subject to bowel complaints; and that some time in the previous year she had a very severe attack, which was considered very similar to what she was then labouring under; on which occasion she was attended by another practitioner of this town, under whose judicious treatment she soon recovered. She appeared of a thin habit, her countenance was indicative of much anxiety and distress, and her sufferings bespoke something more than common colic. There was not much general pyrexia; the skin was rather cool, pulse little affected, and the sensorial functions were undisturbed; but there was a remarkable prostration of strength, which probably was chiefly owing to frequent vomiting; almost every thing being ejected from the stomach soon after it was taken in. She had scarcely any alvine discharge for several days. As it was night when first I saw her, I merely ordered some pills, with *Ext. Coloc. Comp. cum Cal.* to be taken every two or three hours; directing an enema to be administered, if the bowels should not have been evacuated after the second or third dose.

The next morning I found she had experienced no relief, but there was an evident aggravation of symptoms, the abdomen becoming remarkably distended, though by no means so tender as might have been expected; for unless considerable pressure were made on the region of the colon, she did not complain of much pain from the touch. I proposed bleeding, and wished to apply a blister to the abdomen, and adopt other active remedies; but the patient would not submit. In short, from the commencement she abandoned herself to despair. The only medicine I could, by most earnest entreaties, persuade her to take, was some more of the pills above prescribed, to which I added the *Ext. Elaterii*, and interposed a turpentine clyster, which in the course of the day brought off only a small quantity of feculent matter. The next day I could not prevail on her to do any thing; and all I could do was to watch her distressing symptoms, which now resembled those of strangulated hernia; for her vomitings became of a feculent nature, and her agonies were extreme. Another day passed in which little was done; for she implored to be left to her fate. By again, however, at night renewing my entreaties, I prevailed on her to take some more of the pills, being the only form of medicine she would hear of; and her friends prevailed on her to allow another clyster as the former, to be injected, which produced no discharge. After this she would submit to nothing further, but dragged on a suffering existence for two or three days longer, during which, myself, with her friends, were mere spectators of her protracted sufferings, till death came and closed the melancholy scene.

Sectio Cadaveris.—The day after the death of the patient I opened the body. The abdomen was amazingly distended;

and when the *parietes* were turned back, there was scarcely any thing to be seen but colon, which, being so remarkably enlarged, it seemed to occupy the whole cavity. On attempting to move the mass on one side, the coats of the intestine were so tender, though not sphacelated, nor indeed was there any trace of inflammation in any of the abdominal viscera, that they gave way from over-distention, and instantly a rush of highly fetid gas with feces took place, which obliged me to secure it with ligature, to enable me to proceed in the examination. The stomach was empty, and exceedingly contracted; the cœcum was very large, and the colon, as mentioned, remarkably so, owing to the vast accumulation of feculent matter. On tracing the canal, the source of all the mischief and suffering of the patient was found to be owing to a stricture, which had taken place where the colon joins with the rectum, which was so complete as nearly to obliterate the canal at that part. The rectum below, however, was not so much contracted as might have been expected. The discovery of the cause, led me to regret I had not examined the rectum before death; but had I so done, no benefit would have accrued to the patient, on account of her obstinacy, and the high situation of the stricture, as well as the indurated state of the constricted part, which was almost cartilaginous. There was nothing remarkable in the other viscera, except the liver, which was much smaller than usual, much indurated, and of a somewhat purple colour, resembling that of the spleen: it was also attached by many adhesions to the peritoneum. The contracted and otherwise unnatural state of the liver seems to indicate, that much derangement in the functions of that organ had existed for some time previously to her last and fatal attack. But what was the history of her constitutional ailments I had no opportunity of ascertaining, not having attended her before; nor could I learn any thing satisfactory from the friends respecting her.

Some time previously to the above, I met with two cases of strictures in the rectum, both in female subjects, and delicate women; but as there was nothing very remarkable in them, I do not wish to occupy the pages of your Journal by a minute detail of them. The only thing I wish to communicate is the mode of treatment, which was successful in both. The strictures were about two inches within the rectum; and in one case, after one stricture was so far overcome as to admit the passage of the finger, another was discovered scarcely an inch beyond the former, and which was remedied by a perseverance in the same means. I found that the application of a bougie was too hard and unyielding for parts so very irritable; and indeed it excited such distressing pain, that I was compelled to desist from its use. I therefore substituted first a small candle for a few days, and then a mould candle. There is undoubtedly some inconvenience from its strait form; but, by the heat of the body, it gradually takes on the curvature of the parts; and when introduced cautiously, but perseveringly, it both dilates and lubricates at the same time. It has been observed, that strictures in the rectum take place most commonly in females. So far as my experience goes, this is the case. Admitting this to be the fact, it is not very difficult to account for it. Women, in general, are more sedentary than men, and consequently more constipated in their bowels. Possibly, too, the intervention of an organ between the bladder and rectum, viz. the uterus, by its pressure, more particularly in the impregnated state, especially from frequent impregnations, may have very considerable influence in producing the disease in question.

Plymouth Dock, 21*st Dec.* 1821.

VIII.

Case of Death by Inanition from Spontaneous Hemorrhagy.

By James Bonnar, Esq., Surgeon, Auchtermuchty.

William Downie, æt. 34, of a spare habit of body, sallow complexion, hereditarily disposed to phthisis, but enjoyed tolerable health till the beginning of June last, when he complained of a sense of weight in the head, chiefly referable to the forehead, but not amounting to pain. Pulse rather full, but not much quicker than natural; stomach much disordered, and appetite gone; tongue foul; bowels constipated. Conceiving that the complaint in his head might be symptomatic of a deranged condition of the digestive organs, I directed my attention to the assiduous use of purgative medicines, but without any abatement of his disease. On examining the region of the liver, there appeared to be an enlargement of that organ; for the removal of which, I put him through a course of mercurial medicines, during which his mouth was considerably affected, but without any relief from the sense of weight in the forehead. For the period of two years previous to his present complaint, he had a singular tenderness in the mouth, which he described as occupying the gums, palate, tongue, and inside of the cheeks. This occasionally got well; and then a tenderness and excoriation took place about the anus. This in its turn disappeared, when the affection of the mouth returned. These affections continued to alternate in this manner for the above mentioned period.

There were no symptoms leading to suspicion of idiopathic hydrocephalus. There had been no particular determination of blood to the head; nor was there any thing of that irritable state of the stomach which is characteristic of the disease. But no doubt existed that a primary morbid action had commenced in some part of the head, which might lead to the same result; and to prevent this became an object of importance. Accordingly, his head was shaved, and blisters were applied to it, and to the nape of the neck, repeatedly. Leeches also were frequently applied. He was once bled at the arm to the extent of sixteen ounces, and was twice cupped at the temples. After the cupping, his vision almost entirely failed, and objects were seen darkly, and very indistinctly. With the exception of this affection of his eyes, no symptom existed to lead me to conclude that pressure upon the brain had taken place from effusion, or any other cause.

About the end of August, a spontaneous hemorrhage took place from the nose, by which he lost about three pounds of blood. The hemorrhage occasioned no alteration in his complaints, but produced great weakness.

In about ten days afterwards, as soon as he had recovered his former strength, the bleeding recurred, and continued to do so, at intervals of a few days, till the 3d of October, when he died from loss of blood.

For some time before each attack of hemorrhage the feeling of weight in the forehead was greater, but was relieved as the blood flowed. The blood came at first rapidly, but afterwards only in drops. The number of attacks was nine; and each lasted from twelve to thirty hours. He lost in each attack, except the last, from two to five pounds of blood. In the last, which began at six o'clock in the morning of the 2d day of October, he lost seven pounds before the same hour in the evening. He bled gently during the night, till eleven o'clock next morning, when he expired.

The quantity of blood was carefully measured by the attendants as it came away, so the quantity lost, in each attack, was pretty nearly ascertained. I am sure I am within the mark when I say, that he lost, in all, upwards of thirty-five pounds of blood, besides what found its way into the stomach. After none of the bleedings was the loaded feeling of the forehead removed; nor did he see in any degree more distinctly. In each of the attacks successively, the blood was more and more serous, and at last resembled a mixture of blood and water,—the crassamentum, after cooling, forming not more than one-sixth part of the mass. In all the attacks he suffered the most distressing sickness, which, however, never amounted to syncope.

The face, hands and feet, were œdematous during the last fortnight. Every expedient for checking the flow of blood was resorted to, but without effect. Internal and local astringents, cold bathing and plugs were successively employed without benefit. The exhibition of solid opium, in considerable doses, seemed to be the only measure which in the least degree moderated the flow of blood, and that only very partially.

Sectio Cadaveris.—The body presented a remarkably clean subject in the progress of the dissection. After examining the several larger cavities of the body, our hands and instruments were quite unsoiled, the vascular system being quite emptied of its contents.

On opening the head, a quantity of water escaped, which had been effused between the dura and the pia mater, over the anterior lobes of the brain. The appearance of the brain was natural, excepting that no vascular ramifications were seen on the surface of the convolutions. In the ventricles, there was no greater collection of fluid than natural. On carefully removing the æthmoid bone, by sawing on each side of it, and cutting away the external parts of the nose, so as to have a fair view of its cavity, nothing particular could be observed. There was no collection of coagulated blood; but the mucous membrane seemed to be considerably more thickened than it naturally is.

On examining the thorax and abdomen, the lungs and liver were found free from disease.

The heart and larger vessels were almost destitute of blood. The heart, and larger veins leading to it, contained not more than a few ounces of a fluid resembling reddish. So completely had the patient been drained of this fluid, that I concluded death to have been purely and entirely occasioned by the want of a sufficient quantity of blood being brought to the right auricle of the heart, to afford the stimulus necessary to excite that organ to action.

There appeared, in this case, to be no connexion between the complaint in the head and the hemorrhage from the nose, except we suppose that the morbid action going on within the cranium was the cause of a greater general determination of blood to the head than natural; or that the same laxity of the exhalents and superficial blood-vessels, which was perhaps the cause of the effusion of water on the surface of the brain, was also the cause of the effusion of blood from the vessels of the schneiderian membrane. There was some reason to suppose that a local disease, of a peculiar kind, had existed for a considerable time previous to the hemorrhage; as the patient complained, for some weeks, of being annoyed by a fetid and very unpleasant smell, particularly when the air expired from the lungs was emitted through the nose; although nothing particular in the smell of his breath could at any time be perceived by the near attendants.

In the history of this case, a physiological fact of importance was to be observed, which was, that, to the very last, the muscular strength of the patient remained tolerably good. Almost immediately before death, he could raise himself in bed; and, had it not been for the oppressive and most painful sickness, he would have been capable of a very considerable degree of exertion, at a time when not many ounces of blood were circulating in his system. The œdematous swellings of his feet and hands did not, at any time, proceed to great length; and no other marked disease supervened on the repeated attacks of hemorrhage. From a consideration of all these circumstances in a pathological point of view, we may be led not to be deterred from taking blood to a very considerable extent, when found necessary, in cases of disease, from any apprehension of another disease being superinduced, as the consequence of extreme depletion.

The disease, I am quite satisfied, was altogether one of active hemorrhage. After every one of the attacks, the pulse rose considerably in strength and frequency. The blood was, in each instance, very soon coagulated, but showed none of the buffy coat; which was, perhaps in a great measure, owing to the gradual manner in which it came away; for, except at the very beginning of the attacks, the blood only dropped. There was not, at any time, the least appearance of petechiae or vibices.

The pulse rising after depletion, is very often considered as a proof of existing local disease; a point which requires further consideration. I am convinced that, during perfect health, the pulse will, in all cases, rise after bleeding, in a certain degree. In those cases in which it has been previously oppressed, the difference will certainly be more perceptible. But, in such cases, the previous oppression is more a proof of an existing state which requires depletion; and the rising of the pulse, taken singly, is no proof of the necessity of a repetition of depletory measures.

Auchtermuchty, February, 1822.

IX.

On the Use of Oil of Turpentine in Worms. By WILLIAM GIBNEY, M. D., Member of the Royal Medical Society of Edinburgh, and one of the Consulting Physicians to the Cheltenham Dispensary.

ALTHOUGH turpentine has been for a considerable period recommended internally in some diseases, yet the attention of the Faculty has not been many years directed to its use in the various species of worms. I am inclined to think it has not been since so liberally prescribed as it deserves, although in the hands of some practitioners it has proved eminently successful. By others, however, it has been condemned, as either too active, uncertain in its operation, or altogether ineffectual. To account for such contrariety of opinion is by no means easy, unless it might be, that, as experience did not fully justify the praises which were heaped upon it in other complaints, the same might have been the result on trying it in worms. Doubts might have well arisen as to its efficacy, as it was, in the first instance, recommended in diseases whose very nature would seem to have prohibited its use. I here more particularly allude to puerperal fever; in which, had it been praised with but a little more diffidence and moderation, it would have been received with that confidence to which its virtues so fully entitle it. An over-anxiety in incautiously extolling any medicine, purely from our own experience, will often injure the cause we wish to support, until further trials may have given at least some sanction to our opinions; and a still greater error arises from an indiscriminate recommendation in diseases of most opposite characters, which we suppose, naturally enough, demand very opposite modes of treatment. Such has, I think, been the case with oil of turpentine, which, from over-puffing (not in one, but twenty-five or thirty complaints), was at first received with some degree of hesitation.

It is not, however, of its efficacy in puerperal fever I am at present about to speak. Experience has, in my opinion, already fully justified its use in some stages of that disorder. As a remedy for worms, of an *almost* specific nature, I think it worthy of a still more extensive trial. From a good deal of experience in that complaint, I am acquainted with no medicine so likely to be of service, whether we consider the speediness of its operation, or the few doses which are necessary to expel these animals from the intestines. I do not, moreover, think the various species of worms by any means contraindicate its use, as it has, in my practice at least, proved as efficacious in the *ascarides vermiculares* and *lumbricoides* (in this country the most prevalent), as in tænia with other practitioners. I have no doubt but it is equally applicable in the various other species of intestinal worms enumerated by Rudolphi.

When we consider, then, the powerful anthelmintic virtues of this oil, it is rather strange that its reception should be so slow in a disease which so often resists all other medicines. Turpentine, it is true, formed the chief, or rather the only energetic ingredient in Chabert's celebrated remedy for tænia, which has been for several years successfully used on the Continent. It was entirely, however, confined to tænia; nor was it until lately that turpentine has been even tried in the other species of worms. As there is still, I think, some hesitation about its employment, whether from an ignorance of the most proper mode of exhibiting it, or from a disbelief in its virtues, I am inclined to hope the present communication may not prove altogether unacceptable.

The supposed inefficacy of the oil of turpentine has, in a great many instances, proceeded from the ignorance of some, who have given it in cases where the presence of worms was only suspected. Considering the close resemblance which symptoms of worms bear to those of other diseases, we are not to be surprised at this mistake happening frequently, more especially amongst the inexperienced. By others, again, it has been prescribed, because the patient is reported to have once in his life, perhaps, passed worms, although his present ailment may proceed from far different causes. Occurrences such as these are by no means rare; and in such hands, the medicine will be of course condemned.

The care of children, who suffer in a greater proportion than adults from this disease, is most generally confided to the country practitioners. It is on the minds of such gentlemen I more particularly wish to impress the necessity of not only using this remedy more frequently, but in greater doses. By many of them I am confident it has not yet been even tried, and by others in such small doses, that no satisfactory result could have been reasonably expected. So much, indeed, of its efficacy depends upon its being given in proper quantities, that I am persuaded many of its failures are to be attributed to a want of management upon this point. In small doses, its effects will probably be observed, where it is least wished, in the kidneys or skin, for instance, or in other parts remote from the seat of the disease. A small quantity will very rarely act upon the bowels; and although turpentine may be considered as a powerful and most diffusible stimulant, yet so much is not to be dreaded from a large dose as is generally supposed. There are few children of three years of age who will not bear from one to three drachms, given at intervals; and to those more advanced in years, we may order in the same way from three to six drachms, not only with advantage, but with safety. To adults, a still more extensive scale is of course applicable.

Independent, however, of a large dose of turpentine to ensure its salutary operation, there are other circumstances in its exhibition which deserve some consideration. To this end, it should be combined as little as possible with other remedies, which might counteract its effects, or induce symptoms as troublesome as the original disease. Any thing, indeed, of an active tendency joined with it, may render half the quantity a greater cause of irritation than double exhibited in a simple formula. On this account, it is recommended to use it as much uncombined with other remedies as its forbidding taste will admit of. For the same reason, a good deal of the benefit to be looked for from it, depends upon its being given on an empty stomach, in doses repeated at short intervals. I have known patients suffer considerably from turpentine, by not observing certain rules as to diet, &c. when under its influence. By indiscretion upon this point, it will be either rejected by vomiting, or induce a train of stomach complaints and unpleasant general feelings, as harassing to the patient as they are perplexing to the attendant.

Over-fond mothers will seldom admit the propriety of abstinence during the use of any medicine, the ideas of weakness and want of sustenance (especially where there is a craving appetite) constantly haunting them. Yet the physician does not conscientiously perform his duty, who allows his judgment to be biassed by parental feelings, or his practice to be frustrated by the whims of a patient. A prompt decision is on this head absolutely necessary when we order turpentine. We must strictly forbid the use of any food for some time before and after its exhibition, if we wish to give it a fair chance of succeeding.

My method of employing it is to order a good dose the first thing in the morning fasting, and repeat it every hour for three or four hours, as the strength of the patient, or the presence of the disease would seem to indicate. A permanent effect will thus be kept up on the intestinal canal, which will ultimately perhaps save us the necessity of again prescribing so active a means of cure. Although food of any kind is exceedingly improper after taking this medicine, yet it may be necessary to allow the patient to allay his thirst with some warm tea, or acidulated barley water, such diluents rather accelerating than counteracting its effects. Should it prove slow in its operation, a little castor oil, taken some hours after, will be attended with advantage. By mixing the turpentine with some mucilage, cinnamon-water and syrup, I have generally found it sufficiently palatable, even with young patients. The addition of a few drops of strong scented essential oil, or a little warm aromatic tincture, will now and then be an useful addition. By some it has been prescribed in its pure state; but I think this an objectionable mode, especially with children. In subjects who have very delicate stomachs, to avoid vomiting, it may be necessary to prescribe turpentine only evening and morning, under which circumstances an increased dose will be requisite.

It has been recommended to use this remedy externally, by friction over the abdomen, and by glysters, in both of which ways it is said to prove equally efficacious. Of the former, I have had no experience; nor do I think it should be trusted to, without at the same time prescribing it internally. The latter I have tried in some instances with advantage. There can, however, be no objection, probably some benefit, in combining the different methods, especially with those who have an unconquerable dislike to the taste of turpentine.

With respect to the period at which we may look for some ostensible effects from this medicine, it will be of course various, depending upon the dose, the constitution of the patient, the size of the worms, and other collateral circumstances. In some I have known the disease yield to one dose of the remedy, at which time the stools have assumed a natural appearance; in others, a more prolonged course was necessary. In all cases, however, it will be advisable to continue the medicine (observing an interval of three, four, or five days between the regular doses) for some time after we have reason to suppose the worms have been destroyed. The permanent healthy appearance of the stools will be a tolerably faithful index upon this point. Should there be no appearance of worms, after having tried the turpentine, as above directed, at three or four stated intervals, there will be no necessity for continuing it, unless, from after-experience, we may have been led to think that it was not in the first instance given in sufficient quantity. A tolerable knowledge of the medicine and its effects, will here afford a sufficient degree of discrimination in regard to the propriety of desisting from, or proceeding further with it.

I have already said, that turpentine had best be used as much as possible uncombined with other remedies in worms. This observation equally applies to its union with the other anthelmintics, for I do not think they assist its effects. It has indeed this advantage over other vermifuges, that it will be almost always speedy in its operation, requiring no *extra* aid; and, from its almost specific virtues, if there really be worms in the intestines, it is nearly sure to destroy them. With calomel, scammony, jalap, tin-filings, *dolichos pruriens*, &c. we may persevere ineffectually for weeks, nay for months, and have the additional mortification of materially exhausting our patient's strength by so protracted a course of medicine. It is not however to be understood, that I altogether condemn these remedies; by no means. They have, in numerous cases, been attended with very great advantage; yet I am persuaded, when compared with the oil of turpentine, as worm medicines, they are not entitled to much confidence. The *dolichos pruriens* will frequently be found very serviceable; but as it loses its virtues by keeping, it is not always to be trusted to; nor is it so well adapted to destroy the various species of worms. Another advantage that turpentine possesses over other anthelmintics is, that, from its speedy effects and specific virtues, a tolerably decided opinion may be given in regard to the nature of the disease; which is some consideration, where the diagnosis is often so difficult.

To illustrate this subject still further, I take the liberty of forwarding you a few short cases out of many, in which I have derived considerable benefit from the vermifuge effects of this oil. Case VI., in which the child evidently died of consumption, still shows the powerful effect of turpentine in destroying worms, and is the more valuable, as dissection proved that no more of these troublesome animals were left in the intestines.

Case I.—Mrs Brown, aged 35, April 26th, 1819.—Has been ill some months with pain at the pit of the stomach, nausea, and vomiting, which, by exercise, are much increased; much flatulence and colic pains, which are worse towards night; sense of uneasiness at the right side, not, however, augmented by pressure; bowels alternately costive and relaxed; stools black and slimy; sometimes of a green colour; thirst; tongue foul, and at the root of a leaden colour; urine increased in quantity; frequent giddiness; partial perspirations; starts often in her sleep.

℞ *Pilul. hydr. gr. iii. ss. Aloes spicat. gr. i. Mucil. acac. q. s. M. Ft. pilula omni nocte sumenda. Habeat. mistur. purg. ex mag. sulph. et infus. sennæ primo mane quotidie.*

May 1st.—Is rather better; bowels more regular, but stools still slimy and offensive; complains of itching at the anus.

Habeat olei terebinth. ʒiss. ex mucilagine primo mane, et repet. dosis omni hora ad quartam vicem.

3d.—Has passed a vast number of ascarides about an inch in length; appetite much improved; pulse 84; tongue cleaner.

Repet. ol. terebinth. u. a.

11th.—After again repeating the turpentine, a few more worms were passed, and she this day reported herself recovered.

Case II.—Mrs B.'s child, aged 2½, March 14th.—Severe pain of abdomen towards the navel, increased by pressure; constantly picking his nose, and grinding his teeth; breath fetid; frequent starting in his sleep, and general convulsive motions of his limbs; circumscribed redness of the cheeks; much fever; pulse upwards of 160; dyspnœa; no appetite; belly swelled; bowels regular, but stools green and slimy; thirst; frequent perspirations about the temples; pupils dilated.

Habeat calomel. gr. iii. et jalap. gr. vii. statim, et post horas duas sumat. olei ricini ʒii. Applr. hirudines iv. abdomini.

15th.—Bowels well opened; feces black and slimy; still constantly picking his nose; pain of abdomen not diminished.

Repet. hirudines. Sumat statim olei tereb. ʒ ss. ex mucil. et syrupo et repet. dosis omni hora ad quartam vicem.

16th.—Appears better last night; passed a lumbricus 6½ inches long; pulse 140; abdomen still swelled.

Repet. terebinthina.

17th.—Two green stools; pulse 140; a little more convulsed; refuses his medicine.

Habeat enema ex terebinth. et aqua.

18th.—Two stools; passed a smaller lumbricus; is much better.

Habeat pulverem ex calomel. et jalap. u. a.

20th.—Stools more natural; continues to improve.

Repet. pulvis aperiens 2do qq. die.

27th.—Is quite recovered.

Case III.—Elizabeth Bromefield, æt. 7 years, March 17th.—Pain of abdomen; picking her nose constantly; starts in her sleep; breath fetid; appetite voracious; seeks after all kinds of trash, raw vegetables, apples, &c.; is otherwise quite well; ill about a month; stools slimy.

Habeat statim ol. tereb. ʒi. et repet. omni h. ad 4tam. vicem.

19th.—Yesterday passed a lumbricus eight inches long; has been much better.

Repet. cras mane oleum. u. a.

24th.—No more worms passed; stools continue of a good colour; appears quite well.

Case IV.—Mary Anne James, aged 20, May 5th.—Has suffered frequently from small worms; is generally much constipated; itching about the anus; frequent hysterical symptoms; headach; depraved appetite; transient pains of abdomen; and frequently starts in her sleep; stools of a dark colour.

Habeat olei tereb. ʒii. nocte maneque et mucilagine aq. cinnam. et syrup. zingib.

8th.—Has used the medicine four times, and passed a vast quantity of ascarides.—*Repet. oleum tereb.*

15th.—Is much better; no more worms.

25th.—Has passed no more worms; but still suffers from occasional constipation.

Case V.—Mrs Watkin's child, æt. 9 years, May 1st.—Abdomen swelled; pain about the umbilicus; convulsive motions of the limbs, and starting in the sleep; feces green and slimy, sometimes natural; appetite voracious; constantly picking his nose; otherwise well.

Habeat primo mane olei tereb. ʒi. omni hora ad quartam vicem.

3d.—Is better; medicine produces vomiting; no worms.

Sumat ol. tereb. ʒiss. nocte et ʒii. mane sequenti.

5th.—Last night passed a lumbricus, and is much better.

Repet. ol. tereb. u. a. præscriptum.

12.—No more worms observed, and is quite well.

Case VI.—Mrs Hill's boy, æt. 5, January 2d.—Extreme emaciation; has suffered much from the hooping cough these last two months; has still constant cough, with purulent expectoration; abdomen swelled; starts in his sleep; constantly picking his nose, which is followed by superficial hemorrhage; breath fetid; a good deal of fever, accompanied with parched skin, thirst, and much restlessness; pupil dilated; is perfectly sensible, and answers all questions correctly; has been subject to worms; stools sometimes slimy, sometimes green, black, or natural. Pulse upwards of 150; tongue foul, and of a leaden hue.

Habeat olei tereb. ʒi. primo mane et repet. dosis omni hora ad tertiam vicem; balneum tepidum.

3d.—As yesterday; bowels regular.—*Repet. medicamenta.*

4th.—Much intolerance of light, and restlessness; sleeps badly; coughs much; expectoration purulent; pulse 160 nearly; copious perspiration; thirst; no appetite; stools natural.

Repet. balneum h. s. et ol. tereb. cras summo mane, u. a.

5th.—To day, passed a lumbricus nine inches long, and seems to be rather better.

Hab. pulverem ex calomel. & scammon h. s. et olei ricini ʒiii. mane.

9th.—Has continued pretty much as usual; stools more natural; pulse 136; expectoration still purulent, and he gets more debilitated.—*Repet. pulveres p. r. n.*

13th.—Stools green and slimy these two days; constantly picking his nose; urine natural; so weak, is not able to expectorate.

Repet. pulvis h. s. et hab. mist. terebinth. mane.

14th.—To day passed another lumbricus nine inches long; he seems rather better; but his debility is extreme, and his emaciation increases; stools continue green and slimy.

20th.—Stools rather more natural, but is evidently declining.—

Hab. pulv. tragacanth. gr. vi. ter quotidie.

23d.—Died this morning, having passed a natural stool about a quarter of an hour before his death.

Dissection.—Abdomen.—Liver enlarged, its texture natural; a good deal of serous effusion; an intersusceptio was found in the centre of the jejunum, which must have been of very recent formation, as there was hardly any inflammation; no adhesion between the different portions of the gut, and it yielded to the slightest extension; kidneys rather larger than usual; mesenteric glands much enlarged; no worms were found in any of the intestines. *Thorax.*—A good deal of serous effusion in the cavity of the chest; the lungs externally studded with small tubercles; internally three small abscesses were found in the right lung, full of matter, and one in the left; the bronchial cells were full of muco-purulent matter. About an ounce of serum was found in the pericardium.

It is to be observed, that, beside the turpentine, this boy took various remedies for his phthisical complaint, without affording him any relief.

Case VII.—Mrs Hague's boy, æt. 3 years, January 15th.—Complains of constant pain at the bottom of his belly, not increased by pressure; abdomen swelled; picks his nose; starts in his sleep, his arms and legs being previously convulsed; appetite formerly voracious, now bad; stools dark, slimy and fetid; urine in proper quantity; constantly lies with his hand under his head, as if he suffered from pain; tongue foul at its root; thirst; a peculiar leaden cast of the skin between his eyes, and his features are generally much sharpened; lips swelled, and he often picks them.

Habeat olei tereb. ʒss. omni hora ad quartam vicem.

18th.—No worms; still great pain of belly; other symptoms as before.

Habeat 2da quaque nocte pulverem ex calomel. et scammon. h. s. et Rept. ol. tereb. mane.

25th.—Has been well purged, but the symptoms do not abate, nor are the stools of a better colour.

Habeat statim olei tereb. ʒi. et repet. omni hora ad quartam vicem.

26th.—A lumbricus, six inches and a half long, was this morning found in his bed; and is better.

28th.—Appetite improves; stools more natural; countenance more lively.—*Repet. terebinthina.*

February 5th.—Has had no more worms, and is seemingly quite well.

Had the turpentine been given in a drachm dose in the first instance, it is most probable the case would have been of but half the duration; but I did not wish, in so young a child, to commence with too great a quantity.

In the present communication, I have said nothing of the general effects of turpentine upon the body, nor of the probable mode in which it destroys worms; nor have I entered into the natural history of, or symptoms caused by, these animals. By doing so, I should have considerably exceeded the prescribed limits of personal communications to your Journal. I have likewise confined myself to one disease, although I have used this medicine with great advantage in some others. At some future period, I may give you the result of my experience; and will be satisfied, for the present, in mentioning one case cured by turpentine, more for its singularity than for any other reason. A young lady, of fifteen years of age, had been subject to constant vomiting after eating or drinking, during the space of eighteen months. Nothing seemed to remain on her stomach, unless perhaps half a tea-cup full of gruel or broth, and that only if they were given to her at night, when she was in a kind of dose, and fell asleep immediately after taking them. I have seen her myself take a bit of simple biscuit, which was almost immediately rejected. Medicines were the only things that remained on her stomach, and of these she used numbers without the least benefit. Being reduced almost to a skeleton, she consulted the most eminent physicians of this place, who prescribed a dose of turpentine. At first, it induced great uneasiness and pain over the stomach; but her vomiting ceased, nor has it since returned, although she only used the medicine twice. It is now nearly two years since she took it, and is perfectly recovered as to her health and strength. At the period of her arrival at Cheltenham, all the other functions of her body were natural.

Cheltenham, February 9*th*, 1822.

X.

Case of Concussion of the Brain, with Wound of the Face, &c. &c.

By James F. Nivison, Licentiate of the Royal College of Surgeons in Edinburgh, and Hospital Assistant to the Forces.

The object of stating the following case in the Edinburgh Medical and Surgical Journal, is not to promulgate any new facts, theories, or modes of practice, but to add one proof to many others that now exist, of the utility and efficacy of phlebotomy, and the administration of purgative medicines in all cases of injuries of the head, more especially when combined with wounds of the face. In such cases, the probability of an accession of phrenitis, and extensive erysipelas of the face and scalp, point out the prompt necessity of the antiphlogistic system.

The practice of using diffusive stimuli in cases of concussion is gradually losing the confidence of medical practitioners; and I have no doubt it will be entirely exploded in a few years.

On the 21st of June 1821, I was called to Robert Thomson, (æt. 13), who had received an accident from a horse and cart. I found him apparently in a deep sleep, with a complete deprivation of sense and voluntary motion, unaccompanied with stertorous breathing. His pulse was feeble and intermitting; the pupils of both eyes were contracted; that of the left was turned towards the nose; and the surface of the cornea had a glassy aspect. Immediately after the accident, there was hemorrhage from the nose, mouth and ears; and he was attacked with incessant vomiting. There was much contusion above the squamous plate of the right temporal bone, over the seat of the *arteria meningea*, accompanied with tumefaction and distinct fluctuation; but a fracture could not be discovered. Below the orbit of the left eye, there was a deep transverse wound, two inches in length; and from the temporal and nasal extremities of this wound, two perpendicular cuts descended for one and a half inches; so that the maxilla superior and os malæ were exposed to view. The maxilla inferior was likewise fractured on the right side, in a line with the *dens caninus*. Viewing the case as it stood, I was resolved to pursue the antiphlogistic treatment.

Mittatur sang. statim ad ℥xxx.

During the flowing of the blood, he began to move his extremities, and was attacked with vomiting, which evinced his partial recovery from the stupor and insensibility. Before his arm was bandaged, he was able to answer questions in a low tone of voice. The wound on the face was united by the interrupted suture; and the fractured extremities of lower jawbone were kept *in situ* by the assistance of a splint compress and roller; and a piece of wood was introduced between the teeth, over the fracture, to prevent attrition and misplacement, and allow of the insertion of fluids into the mouth. Complained of thirst. The head was shaved, and kept constantly wet with the cold lotion.—*Injiciatur enem. dom. statim.* Milk diet.

22d, 10 *a. m.*—Comatose state considerably diminished; pulse 100, and more full; enema had little effect; has been attacked several times with vomiting, and complained of pain of left side of head, opposite to contusion over right parietal bone.—*Emitt. sang. ℥xxv. et capiat sulphatis magnesiæ ℥iss.* Barley-water allowed for drink, with a very small portion of tart. of antimony dissolved in it.

23d.—Had a restless night, but inclines to sleep at present; skin rather warm; pulse 95, less full; has had no stool from the physic; complains still of pain over left parietal bone; his countenance is slightly flushed; fractured maxilla in its relative situation; other functions natural.

Mitt. sang. ad ℥xx. Injic. quamprimum enem. purgans et repetatur etiam sulph. mag. ut antea.

24th.—Had several loose stools from injection and salts; heat of surface abated; pulse 90, and of more natural strength; face less flushed; had still pain of left side of head, and was restless; ecchymosis of right eye; the swelling over right parietal bone diminishing gradually; wound of the face dressed; healing by the first intention.—*Appl. vesicat. statim parte capitis dolenti et capiat. sulph. magnesiæ ℥ii. tertia quaque hora.*

25th.—Several stools from medicine; redness of countenance gone; pulse 85; passed the night less disturbed; pain of head nearly gone; blister rose well.—*Cont. sulph. mag. ut antea.*

26th.—Bowels opened freely; feels himself better in every respect; wound nearly cicatrized; stitches removed; fracture of lower maxilla united and immovable; pulse natural and calm. *Intermitt. medicamenta.*

In a few days from this date, the above patient was convalescent, complaining only of debility for some time; but his strength was soon restored, as a gradual change was made from a milk to a full diet; and, by the occasional exhibition of a laxative, the dangers attendant on a sudden plenitude of the blood-vessels was to a certain extent obviated. The squinting remained after his complete recovery.

Observations.—The first fact that may be noted in the above case, is the strabismus or squinting of the left eye. The squinting proves loss of function of one half of the 6th pair of nerves, and consequent paralysis of the abductor oculi muscle. Now, one would have conceived, *a priori*, that this contortion of the eye would have happened on the side of the head which sustained the blow. The circumstance cannot be explained by decussation, as the 6th pair of nerves do not decussate. Immediately on the occurrence of compression or concussion of the brain, all the nerves of the body seem evidently to have lost their tone; but, on the recovery of the patient from such a state, the cause is not obvious why a part of the 6th pair of nerves should remain paralytic, and the 1st, 2d, 3d, 4th, &c. continue healthy. The 1st pair, having their origin from the *corpora striata*, were certainly nearer the spot where the force was applied. The second circumstance that may be noticed, is the gradual recovery from the insensible state, during the flowing of the blood. Detraction of blood, by diminishing the plethoric state of the arteries and sinuses within the cranium, would so far restore the lost tone to the cerebral nerves, and consequently to all organs on which these nerves were ramified. The action of the lungs would be materially assisted by depletion; the effect of which would be a less obstructed circulation of blood through the pulmonary cells, and the necessary prevention of it collecting in the sinuses of the dura mater. Upon the principle, therefore, of removing pressure, and giving scope to muscular action, the immediate relief attendant on plentiful venesection may be explained; thereby establishing the healthy circulation of the blood through the head and chest.

Many phenomena occasionally attendant on injuries of the head require further elucidation. Even if new light was thrown on the subject, it would not necessarily follow from hence, that the practice of surgery or medicine would be advanced; because, when a disease or injury lies centrad of the pia mater, little confidence can be placed in medical or surgical science. Some individuals recover from dreadful gun-shot wounds of the head, penetrating the brain, (cases of which I witnessed while stationed at Brussels, after the battle of Waterloo); but no general conclusions can be drawn from such cases, as similar injuries, in the majority of instances, prove fatal. However, investigations of the above description, although they may appear at the time to lead to no practical result, are still valuable, as, by such means, additions are made to our stock of physiological and pathological knowledge.

Middlebie, 15*th December*, 1821.

XI.

Observations on the Proximate Cause of Inflammation. By JOHN M'GHIE, Surgeon, Royal Navy.

A JUDICIOUS and eminently useful surgical writer of the present day states, that "pathologists in general mean, by the term Proximate Cause, that mysterious change—that secret process—*that first essential action in the part, which constitutes the very beginning of inflammation, keeps up its progress, and is inseparably connected with its existence.*" *

If the accuracy of this definition be admitted, it will be obvious that those hypotheses are inadequate to account for the existence of inflammation, which are founded on the state of the circulation in the capillary vessels of the inflamed part. For we know that the velocity of the blood may be increased or diminished in these vessels, without this morbid affection being produced. Nay, heat, redness and swelling, by which increased determination of blood to a part is denoted, may be induced without inflammation ensuing. Again, if the phenomena which inflammation presents, depend on the state of the circulation *alone*, how shall we explain the appearance of these symptoms some days after the causes which are supposed to affect the action of the vessels are withdrawn? or how happens it that a part at a distance from that to which they have been applied shall be attacked with this painful malady? It is, perhaps, impossible to give a satisfactory solution of these questions, in our imperfect knowledge of the animal economy. A patient consideration however of these, and other circumstances connected with the state of inflammation, has convinced me, that the doctrines at present promulgated respecting the proximate cause of this disease are erroneous, and that we must seek an elucidation of this cause in the condition of the subtile fluid in the ganglionic nerves † of the inflamed part. Facts and observation teach us, that the nervous power depends on a subtile fluid.[*] If we regard this fluid, then, as a secretion from vessels distributed on the nerves, and observe that other animal secretions are increased in quantity, and frequently altered in quality, by whatever irritates the organs which furnish them, is it not probable that *the various remote causes of inflammation irritate the nerves of the vessels which furnish the nervous fluid*, and thus cause an unusual quantity of it to be secreted? But as an augmented supply of this fluid confers an increased power of acting on the muscular fibres whose nerves are so supplied, the sanguiferous vessels of an inflamed part consequently propel their contents with unwonted force; and the secretion of the nervous fluid thus comes to be kept up by the cause and effect mutually influencing each other. If the stimulus, however, be moderate, tone and energy of action are the only consequences of its application; but when it is excessive, or considerable and long continued, the secretion becomes *in some degree deteriorated*,[†] and pain, with other symptoms of inflammation, are produced. When the exciting cause is withdrawn, and the activity of the vessels which absorb[‡] the nervous fluid is greater than that of those which secrete it, arterial action diminishes, and with it secretion. Irritation being in this manner lessened, inflammation gradually subsides. (In this way, I imagine, the resolution of *simple* inflammation is effected; but in *specific* inflammations, the nervous secretion can only be restored to its healthy state, and disease removed, by causes which *directly* induce a salutary change of action in the organs which furnish it.) Excitement, however, may be so violent as to suppress the secretion of the nervous fluid altogether, or it may so alter its properties that it will no longer fit the nerves for the performance of their functions. When either of these occurrences takes place, partial or general death of the body immediately ensues.

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* Cooper's First Lines of the Practice of Surgery, p. 12. Ed. 4.

† It is now ascertained, that the arteries, and other organs of involuntary motion, are supplied with nerves from the ganglionic system; hence the vital actions continue, while sensation and volition are suspended. These organs are also supplied with nerves of sensation, *that convey a mental stimulus to them,* but do *not* carry impressions to the sensorium, unless they are unusually excited by some irritating cause; at least we are not conscious of any being made, except under these circumstances.

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[*] We observe, that the nervous energy is recruited by repose, after it has been diminished by an *excess* of mental or corporeal exertion, or the continued application of other strong stimuli to the body. It is evident, therefore, that a *something* existing in the system has been altered or removed by these stimuli being applied, which is renewed or restored when they are moderated or withdrawn; but, as the vital or immaterial principle is, from its nature, unchangeable, it follows, that the alteration which has taken place must be in the state or condition of the nervous system through which this principle manifests itself; and as we also find that the nervous energy is increased by an active circulation, and diminished or exhausted by a great degree of muscular action, it appears to me, that these facts can only be explained by assuming, that the nerves are fitted for their office in the system by the secretion of a subtile fluid or halitus from vessels distributed on them; which fluid is increased in quantity, when the contents of the lymphatic arteries of the nerves are propelled with a greater momentum. As the vessels, however, which absorb this fluid, *act in health* with an energy proportioned to the *quickness* with which it is secreted, it is never allowed, therefore, to collect in any quantity in the sheaths of the nerves, but is supplied and expended, so long as the organs employed in these processes preserve their original structure, and the blood to afford a proper secretion; unless it happens to be so altered by causes *directly* affecting its qualities, as to be rendered totally unfit for its purposes in the animal economy; in which case, the vital actions are instantly and for ever arrested.

[†] When I reflect, that a part which is inflamed has its functions impaired, and its irritability increased, also that an organ, which has been weakened by previous excitement, is most liable to suffer from inflammation when the action of the heart is much increased, and that the symptoms of inflammation, with the exception of pain, may subsist for a time without this complaint being induced, I am led to conclude, that there is some change from the healthy quality of the fluid in the ganglionic nerves of an inflamed part, and not simply increased secretion of it, previously to an attack of inflammation; *upon which change* the existence of this disease essentially depends.

[‡] We know that the animal machine is constantly undergoing a change of its constituent parts, from the instant it is called into life, until this is extinguished.

I am strengthened in these opinions by the arteries of the nerves being much more numerous[*] than can be supposed requisite for the nourishing of them merely—by tone and sensibility being increased by an active circulation—by the periodical increase and diminution of pain, which is more or less experienced in inflammation—by the degree of animal heat being regulated by the *quantum* of nervous energy present—by the phenomena of inflammation being modified by certain states of the system, and by mental affections at times inducing them. Also, when I advert to the curative means employed in simple inflammation, I find, that those are in general most useful which diminish or alter the condition of the nervous secretion, by lessening the stimulus of distention in the sanguiferous vessels; yet instances occur of inflammation being aggravated by depleting the vascular system; and it is of importance to remark, that, in some of these, the symptoms will readily yield to medicines which are known to act in a special manner on the secreting and absorbing vessels. Further, the circumstance of specific inflammations attacking particular parts of the body, seems to me so analogous to what is observed of certain medicines af-

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This change can only be effected by organs of accretion and waste pervading every part of the body. I argue, therefore, the presence of absorbent vessels in the nerves and their investing membranes, though their minuteness precludes the possibility of demonstrating them.

[*] We notice a provision to retain in the vessels of the brain an ample supply of blood. We remark the high vascularity of the pia mater, a membrane which closely invests the brain and its prolongations. We find a large portion of the brain to be composed of cineritious substance, the peculiar colour of which is known to be owing to an infinite number of blood-vessels which ramify through it. We also observe this substance enter into the formation of the spinal marrow and nervous ganglions, and always discover some of it near to the origins of the cerebral nerves. In further proof of the care which Nature has taken to secure to the nervous system a large supply of the circulating fluid, Dr Parr mentions (Med. Dict. vol. 2d, p. 241.), "that *the arteries of a nervous cord are so numerous, as, with the usual injection, to render the nerve of an apparently uniform colour.*"

fecting certain organs only, that I am disposed to believe that the causes which excite the former, and those which affect the latter, are regulated by the same laws;—each of them acting only on nerves having a peculiar organization. These sentiments derive a degree of confirmation from the diatheses on which some kinds of inflammation depend, being evidently, in many instances, acquired; also by our being able, by a strict attention to the non-naturals, to ward off attacks of disease, to which there is a marked constitutional predisposition. Moreover, if particular diseases were *solely* owing to hereditary conformation of the body, they must necessarily exist, so long as the animal structure remains unaltered; but having once ceased to operate, how they come to be renewed, especially in parts they formerly occupied, is perfectly incomprehensible; unless it be admitted, that causes which operate on the living solid so modify its action, as to induce particular changes in the fluids circulating in the body; and according to the peculiar nature of the change which these have undergone, they prove a stimulus to *certain only* of the variously organized nerves exposed to their influence, and *thus excite* specific morbid action.

Reasoning, then, from these premises, I infer, that the phenomena constituting the state of inflammation depend on the condition of the subtile fluid in the nerves of the inflamed part; *particularly as it subsists in those of the ganglionic system in this part.* Aware, however, that a much greater number of facts, with perhaps a more cautious induction from them, is necessary to establish the truth of this opinion, I earnestly hope, that the evidence which I have adduced, corroborative of my conclusions, will be the means of exciting the members of the profession to prosecute the investigation with the zeal and industry which the subject claims; for it is presumption to maintain, that no improvement in the treatment of inflammation will result from a knowledge of its immediate cause, so long as we remain ignorant of what this is. The failure, therefore, of former attempts to ascertain this object will, I trust, only serve as a stimulus to the use of more strenuous exertion in the research. Should their endeavours to unveil it ultimately fail, yet the persevering application of talent and intelligence to the study of the connexion which subsists between the nervous and sanguiferous systems, *must* lead to discoveries that will, I am persuaded, greatly extend our knowledge of the animal economy, and be found to explain many of the phenomena which the human body exhibits in health and during disease.

Dumfries, 26th January, 1822.

XII.

Topographical Pathology of Kendal and its Neighbourhood. By THOMAS PROUDFOOT, M. D.

EVERY one acquainted with topographical sketches, is well aware how extremely difficult it is to convey just and correct notions of a place by verbal description; for they vary not only in appearance, when viewed from different situations, but various and discrepant delineations are frequently given of the same place, by different individuals, who, it is obvious, were actuated only by a zeal for perspicuity and truth. I trust, however, to be able to convey a general outline sufficiently accurate and intelligible for my present purposes.

Kendal is situated on the western bank of the river Kent, in the county of Westmoreland. It is about 45 miles south of Carlisle, and 259 N.N.W. of London; long. 2. 52. W.; lat. 54. 15. N. The town may be said to be built partly on the side, but principally at the foot, of a hill, which runs north and south.

The river Kent rises in Kentmere, about ten miles north of Kendal. It receives several streams of considerable magnitude, which also take their rise in the same chain of mountains. The river winds through the valley, running in a southern direction; and, on the eastern side of the town, it can easily be perceived, too, that the town has an eastern aspect: the ground on which it is built is unequally acclivous. The river approaches the town from the north, and makes an encroachment on this boundary; but it is reflected, and winds round a neck of land at the extremity of the hill. In this course, it passes under a bridge, called Stramongate Bridge, which leads from one of the principal streets in the town. A little below this bridge, the river divides, and encircles a small island. The eastern branch of the river washes the base, or foot of a hill, on the opposite side of the town. It then suddenly bends towards the town, joins the western branch, passes under another bridge, called Mill Bridge, and approximates the middle length of the town. After running about 280 yards, it is again reflected, and finally approximates the southern extremity, or that part of the town called Kirkland, passing under the third bridge, called "Nether Bridge."

The principal street is about a mile in length, and runs nearly north and south, though not along the immediate bank of the river, but rather in the centre of the town; it is of unequal breadth.

The houses in the main street are generally constructed of limestone, and covered with blue slate; they are lofty, capacious, and well built; variously occupied by the more wealthy and respectable inhabitants. They appear to be joined together, and to form one continuous line; but every few yards there is an arch or passage, which often leads into a narrow ill-ventilated yard or square, generally inhabited by the poorer classes of the manufacturing people. Occasionally there are narrow lanes or streets, branching from the principal street, two stories high, and only a few feet between them, with either a sewer or open drain in front of each side of the lane, hence leaving merely a foot-passage. These lanes often do not run down to the edge of the river on one side, or to the open height on the other, as might naturally be supposed; but are frequently terminated by a house, a garden-wall, a dunghill, a privy, a tan-yard, or some such obstacle equally inimical to the admission of pure air, running across and shutting up the passage. In many parts of the town, there are large gardens attached to the principal houses, which may be considered salutary in several respects;—they at least occupy a space which might have been taken up by manufacturing establishments, always less salutary; though the gardens are not so useful in this respect as might have been expected, as the proprietors are under the necessity of surrounding them with high walls to prevent intruders. Doubtless, however, they frequently solicit the female part of a family to walk in the morning, which otherwise would not have taken place; and the greatest delight is often taken in the cultivation of culinary vegetables and flowers, an amusement which has always been reckoned to have the most salutary and beneficial tendency on both mind and body, and is often the only amusement or exercise which some individuals pursue in the open air.

After this general description, I shall point out, in a more particular manner, the different parts of the town, and especially the various localities, which seem to affect the health and comfort of the inhabitants.

Kendal has been described to stand at the foot, and on the side of a hill, along the margin of the river. Perhaps it may be better understood by stating, that it occupies the bluff of the hill, which conveys a notion that it is elevated in the middle or principal part, and that the southern and northern boundaries are somewhat lower, which is pretty nearly the case.

I shall commence at the southern part of the town, or that part which is called Kirkland, and which does not belong to the borough of Kendal. It lies low, and is more immediately situated on the side of the river, than most other parts of the town. Kirkland is separated from Kendal by a streamlet issuing from the hill on the western side of the town, called Blindbeck. It is the only stream of note * which runs from the hill into the river. It is often suddenly swollen, as is the case with all mountain streamlets, and then inundates several of the houses. When, in the summer months, it is sometimes dried up, the exhalations from its channel become extremely offensive. The church of Kendal is situated on the south-western angle, formed by the river Kent, and the rivulet of Blindbeck. This is perhaps the most unhealthy part of the town. Whether this is owing to the low damp situation in conjunction with the churchyard, the vicinity of which is generally reckoned unhealthy, or to the fortuitous and accidental circumstance of being occupied by the poorer classes of sedentary tradesmen, I shall not presume to determine; but this I can aver, that it has appeared to me that the cases of fever, dyspepsia, scrophula, and phthisis pulmonalis, from this neighbourhood, were greater in proportion to the population than in other parts of the town. Dirty, narrow, crowded, ill ventilated apartments, conjoined with a sedentary life, a want or scarcity of fuel, bad clothing, and the cheerless prospect of little amelioration of external circumstances, to some or most of which causes many of the inhabitants of this vicinage are exposed, have such an effect in depressing the mind and weakening the body, that they have obtruded themselves on the notice of the most superficial observer, as the more prominent causes of what is generally, perhaps improperly, called typhus fever,—I mean the common fever in this country, cases of which I have had occasion to remark are often occurring here. But some of the circumstances mentioned here do not, at first sight, appear to be very intimately connected with the production of pulmonary consumption. It is generally believed, and seems to be supported by experience, that in mountainous districts, where the air is sharp and keen, the pulmonary system is more liable to inflammation, and consequently to lay the foundation of phthisis pulmonalis, than in the vicinity of swamps and marshes, where the temperature is higher, and where gases are emitted, from the decomposition of vegetable matter.

It is true, that we have neither swamps or marshes here; nei-

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* Except Anchorites' Well, a little to the south of Blindbeck, the temperature of which is about 46 of Fahrenheit during the whole year, and its flow is constant and without much variation.

ther is there much vegetable matter produced in the neighbourhood of Blindbeck; but when the streamlet is low, there is often an abundance of putrid animal and vegetable matter to account for the prevalence of the diseases alluded to. When the streamlet is apparently dried up, upon a more accurate inspection, the water will be found to infiltrate through the sandy soil; and water may always be found by digging a few feet from the surface. It appeared to me, that, in two cases of consumption from this neighbourhood, the disease had its origin in a deranged and vitiated state of the digestive organs.

Passing along Highgate northward from Blindbeck, there is a considerable rise. The street too, at this part, diverges from the river. On the western side of the street, there are a few courts or yards; and, before arriving at the brow of this eminence, there is a lane which runs eastward, parallel with the streamlet of Blindbeck, and occupied by a similar class of people, but apparently more healthy. On the eastern side of the street there are also yards, courts, and lanes; but few of the houses run so far down as the river. The houses immediately on the bank of the river are chiefly manufactories or storehouses. Proceeding from this eminence along Highgate, there is nothing requiring to be particularly specified, till about the middle of the town, when a street branches off to the right, leading over Mill Bridge; to the left there is a corresponding one, which leads up the hill, and communicates with a road running from the lane already mentioned, as passing in a western direction. These are the only roads from this part of the town.

Passing along Highgate from this point (or a little before it) there is a second rise; and nearly the same description applies with respect to the appendages on each side, as already noted; the courts are often narrow and ill-ventilated. From the head of New-street, till the highest part of this eminence, there is a want of gardens attached to the houses of note, as on both sides of the street from Blindbeck. Upon the whole then, this may be reckoned the body, or most crowded part of the town. On the left, there is a part of the town, which is not a continuation of yards or lanes, leading from the principal houses in Highgate in the manner already described. These buildings are situated on the side of the hill, about half a mile from the river, and overlook the town; they are chiefly occupied by the lowest classes. The situation is healthy.

About the length of two thirds of the town, the principal street begins to dip, and here receives the name of Strickland-gate. The same peculiarity of building and arrangement prevails as in Highgate, but the site is more level. There are also gardens attached to the principal houses, similar to other parts of the town already mentioned. Several of these gardens are of considerable magnitude, particularly some situated in a triangular space formed by Stricklandgate, Stramongate, and the river. On the west of Stricklandgate, or between this part of the town and hill, there is an unoccupied space, which was formerly a morass or swamp, but by culture and draining has become a productive meadow. This marsh was formerly considered the parent of intermittent fevers. Since the draining, these have entirely disappeared; but still it seems to have some influence on the general health of the inhabitants, from their sallow appearance, (I allude to the people who inhabit the small houses on the back of Stricklandgate), and from the number of febrile, dyspeptic, bilious, and rheumatic patients, who apply for relief at the Dispensary from this neighbourhood.

The road from Stricklandgate, on the northern end of Kendal, turns suddenly to the left, ascends a little, passing the northern extremity of the hill on which the town partly stands, leading westward to the lake of Windermere, about nine miles from Kendal; while another road passes in front of a street lately built, on a very salubrious and pleasant situation, called Strickland Place, leading in a northern direction to a range of mountains, about six miles distant.

From nearly the northern end of Highgate, or about two-thirds of the length of the town from its southern boundary, there is a narrow street or passage which branches in a north-eastern direction, leading to the neck of land and bridge first mentioned, called Stramongate Bridge. This street dilates into a broad and elegant form, containing houses of a very excellent description; it cannot, however, be considered free from the incumbrance of courts and yards, similar to those described as belonging to other parts of Kendal.

On passing over this bridge, the road holds a northern course leading towards Carlisle. On each side there is a row of houses, many of which have been lately built. Though they lie nearly on a level with the bed of the river, they cannot be considered unhealthy, compared with many of the confined lanes, courts, and yards, so often alluded to. Here the inhabitants may be considered to enjoy all the advantages of country air. The soil is loamy and alluvial in this neighbourhood.

Immediately along the eastern side of Kendal, there is first the river Kent, at the distance already specified; still proceeding eastward, a canal; then a hill or eminence which rises abruptly, and on whose summit is situated the ruins of an ancient fortress. From this point you command a full view of the town. This hill or eminence is insulated. It stands on a plain between the river and a range of mountains running from north to south, and which will be mentioned at another place. This leaves the description of Kendal, as immediately situated between two hills; the distance of whose summits, in a straight line, is probably little more than a mile.

The hill on the western side of the river may also be said to stand insulated, in a manner somewhat similar to the one on the other side. It terminates abruptly at its northern extremity; the road to Windermere Lake runs westward along its northern base. The western base of this hill presents a very bold front, having a perpendicular scar nearly two miles in length, resembling in a remote degree the famous Salisbury Crags near Edinburgh. This mountain runs in a southern direction, parallel to the chain on the eastern side of the river, and is chiefly composed of limestone.

The eastern and southern aspect of this hill differ in a considerable degree from its northern and western. The hill immediately above Kendal rises in a knotty and irregular form, to the height of 216 yards above the level of the sea; the soil is light and calcareous, cultivated only in small and detached plots among the rocks; here too, the limestone is found of which the town is chiefly built. On the northern side of the streamlet of Blindbeck, the hill rises to a considerable height; and from this point is beheld the whole series of mountains by which Kendal is nearly encircled; but the hill at this part suddenly begins to dip, and consequently has a western aspect, which is principally uncultivated. The soil is thin, stony and barren, till it again begins to rise, when an amelioration takes places; but the soil gradually begins to deteriorate as you ascend. At length, not only the hand of the agriculturist, but even vegetation nearly disappears; and the surface becomes covered with loose gray stones and rocks, exhibiting as meagre and arid an appearance as can well be imagined; continuing, without much alteration, till arriving in an abrupt and unexpected manner at the western side of the hill or scar already alluded to.

I have been the more particular in describing the hills on each side of Kendal, in consequence of their proximity and abrupt rise affecting, as I conceive, the general salubrity of the place. The humidity of the atmosphere is well known to bring on and aggravate dyspeptic and nervous complaints, more than usually prevalent in this neighbourhood. This western hill is often covered with clouds and mist at its summit, when the adjacent country is clear. In calm and serene states of the atmosphere, it seems to attract and retain the smoke of the town, which, mixing with the mountain air, occasions a deposition of moisture either immediately on the town, or in its vicinity. In particular cold and damp states of the weather, when the hill or eminence on the eastern side of the river (which is not so high as the other) is not enveloped with fog, there is a difference between the purity of the air in the town, and on the banks of the canal, or even on the opposite side of the river, more palpable and manifest to the senses than possibly could have been expected in so short a distance, bearing no proportion to the change felt at other times, or to the difference between the purity of country air, and the air of towns of similar magnitude dissimilarly situated. Below the town, on the western side of the river, and immediately on its banks, the soil is often of a loamy and alluvial nature. As the hill rises, however, and the farther the distance from the river, the land becomes lighter and more calcareous, till vegetation nearly disappears; and the summit becomes covered with the same materials, and exhibits the same appearance, as that immediately above the town. The distance the land is cultivated up the hill from the channel of the river, varies at different places. It is generally about a mile. The extent of common, or uncultivated barren surface, from the top of the hill, varies too, according to the extent of cultivation upwards, and to the altitude of the hill, which gradually slopes to the south, and is cultivated nearer and nearer its summit, till about three miles from Kendal, when it is cultivated near to, or over, its highest part.

The river Kent, about five miles below the town, turns a little westward, and winds partly round the extremity of this hill, holding its course through some newly broken in land of an alluvial and fertile description, till it empties itself into an arm of the sea, called the "Lancaster Sands," about seven miles from Kendal.

From this description the reader will probably perceive, that the "Lancaster Sands" lie more to the westward than the hill,—the sands run in a line with a valley on the back of the hill,—and it appears probable, from the number of marine productions found here, that at a remote period the tide must have overflowed part of the valley. At the bottom of this vale, there is an extensive moss, which supplies Kendal and its vicinity with a considerable part of their fuel. Lately it has been considerably improved by draining, and encroachments have been made on it by the agriculturist. Formerly intermittent fevers were prevalent in this neighbourhood, in the vernal and autumnal months; they have now become of very rare occurrence.

Kendal may thus be said to be surrounded by mountains on its western, northern, and eastern sides; and to return to the western side of the hill above the town, the country will be found, at first view, to present the most rugged and unproductive aspect. A great part of this country was, till lately, an uncultivated common, covered chiefly with heath and broom, beset with large clumps of loose trap or blue stone. This was the predominant feature of a great part of the country between Kendal and the lake of Windermere.

To describe merely the predominant features of a country, without drawing any deductions from the probable influence it may be supposed to exert over the primordial constitutions, or general health of the inhabitants, would be a very trivial piece of information; though, in describing the land cultivated in irregular and indented patches, as high up the hills and among the rocks as the depth of the soil will admit of, and the barren summits of many of the hills, I am persuaded that some of my readers will, from these circumstances alone, immediately recognise many of the habits incidental to people inhabiting similar districts.

I am persuaded that it is to the originally arid and barren soil in this neighbourhood, that we are in some measure indebted for that orderly good conduct, and regular persevering industry, now aided, no doubt, by education, and strengthened by example, which pervades every class of society, and appears eminently characteristic of the inhabitants of this town and neighbourhood.

Before entering on the diseases or average mortality among the people in Kendal and its neighbourhood, perhaps it will be as well to state the manner in which the poor generally live; though I am persuaded that, on this head, I have little to add that most of my readers are not perfectly aware of. They generally breakfast about 8 o'clock, on tea, bread and butter, &c. A very few take porridge and milk, or bread and milk, in Kendal: this custom is more prevalent in the country.

The town of Kendal, according to Mr Curwen, is the most abundantly supplied with milk of any town in the kingdom. He adds, " the daily sale of milk in the town of Kendal is equivalent to a pint to each person. A fourth part of the Kendal supply is of skimmed milk. The sum paid for milk annually was 800*l.*, when the population was 7500;" but when Mr C. made his estimate, the population of Kendal and Kirkland must have been greater than he states.

The lower orders in Kendal dine about noon, on potatoes and bacon, or beef or mutton stewed along with potatoes. A-

A Return of the Number of Patients treated at the Kendal Dispensary for a period of Twenty-seven Years, with Columns of some of the most prevalent Diseases.

Year.	Intermittent Fever.	Continued Fever.	Pulmonic.	Phthisis.	Stomach Complaints.	Bowel Complaints.	Icterus.	Liver Complaints.	Total admitted during the year.	Died.	Expenses for Medicine.		
											L.	s.	d.
1795.	5	275	59	8	94	99	15	—	1588	36	121	15	0
1797.	—	84	57	5	118	92	22	—	1274	14	81	7	0
1798.	12	103	44	6	146	98	63	—	1241	15	96	13	6
1799.	13	52	79	7	101	96	9	—	1055	22	93	8	0
1800.	2	137	52	9	72	100	3	—	1077	24	149	6	0
1801.	4	263	80	9	171	81	5	—	1427	40	109	6	9
1802.	4	92	56	19	28	36	3	—	921	17	86	5	7
1803.	4	60	49	15	30	42	2	—	915	24	71	1	2
1804.	7	76	116	18	108	143	7	—	1428	32	73	9	9
1805.	6	86	101	17	100	111	4	—	1164	33	58	18	0
1806.	2	57	75	3	138	135	4	—	1156	25	71	1	3
1807.	—	53	89	8	135	148	—	—	1211	24	78	0	1
1808.	9	68	94	7	104	118	3	—	1087	29	72	1	2
1809.	19	116	53	17	125	133	5	—	2075	26	142	12	7
1810.	6	47	138	13	111	149	4	1	1243	32	110	11	8
1811.	8	61	126	6	75	115	4	2	1428	28	68	11	7
1812.	9	16	103	12	41	129	8	3	1245	40	158	15	8
1813.	2	79	85	2	79	128	3	—	895	42	69	13	8
1814.	—	73	104	—	54	127	3	—	768	23	105	19	1
1815.	3	206	122	6	113	116	8	2	1657	36	169	3	5
1816.	—	133	126	5	89	76	7	2	1402	50	134	7	1
1817.	1	291	94	8	77	109	4	2	1596	62	148	11	5
1818.	—	270	78	7	59	86	5	—	1083	48	178	16	9
1819.	1	145	106	2	52	102	11	—	1103	34	168	13	11
1820.	—	177	141	11	83	86	2	29	1923	43	139	9	1
1821.	1	209	236	18	37	40	10	59	1698	49	128	10	3
Total	118	3225	2464	239	2340	2695	214	100	28761	848	2886	9	1

It was my intention to have given a detailed account of the diseases to which the inhabitants of Kendal and its vicinity appear more particularly liable; but as this paper has already been extended to a greater length than consistent with my primitive plan, and without embracing many of the subjects I had originally contemplated, I must, for the present, desist from any thing more than merely glancing at the subject.

From a return made out from the Annual Reports of the Kendal Dispensary, it will appear that there has been a considerable fluctuation in respect to the number of cases of fever; varying, annually, from 16 cases in 1812, to 291 cases in 1817.

This fever originates spontaneously, generally among the poor, depressed by grief, anxiety, cold and want, &c; and possesses the power of propagating itself by contagion, in confined, dirty, ill-ventilated apartments. The force or activity of the contagion seems to vary occasionally, independent of the modifying circumstances with which we are acquainted; like small-pox epidemics, sometimes it is mild, occasionally malignant. I have seen it on an extensive scale in Dublin, and in different parts of Ireland, among the soldiers in the public hospitals, and in private life; I have seen it in Scotland, and in this country; it is the same disease in all, modified by contingent circumstances. So much has lately been written on this subject, that even this notice may be deemed superfluous. I cannot refrain, however, from relating a circumstance (several of the same kind having come within my own knowledge) which seemed to bear on some points which have been occasionally agitated. While quartered with a detachment of the Rifle Brigade at Maryborough (Ireland) in 1818, now and then a case of the epidemic fever occurred, which, if contagious, appeared not very eminently so. The men were quartered in billets—two, four, six, or eight, in the same house. After three months residence in the same room, an athletic soldier caught the disease; but, whether the fever in this instance originated *de novo*, or from contagion, could not be ascertained; the soldier was inconscious of having been exposed to contagion. The encephalon was particularly engaged; he was bled twice; but so irregular was the distribution of blood, that I was afterwards called suddenly to see him, and found him comatose. First one temporal artery was opened, then the other; he immediately revived, and ultimately recovered. During this process, he breathed full in my face; I felt it particularly obnoxious, and related to an officer, on my return home, that, in eight days or a fortnight, I should probably be laid up with the fever, having previously observed that this was about the latent period. The wife of the soldier arrived from Dublin on that day; she had not seen her husband for three months before. On visiting him in the evening, I found her resting on his bed-side, and warned her of her danger. I was seized nine days from that date; the head was slightly, the bowels severely affected. The disease was arrested by bleeding, &c., but returned in two days. I was bled again, and it was again cut short. I suffered five relapses in four weeks, and recovered with the greatest difficulty.

The soldier's wife was seized on the tenth day from her arrival. In her case, I understood both the head and bowels were seriously affected or inflamed. Five other soldiers, who occasionally visited this man, all caught the fever; they were, ment of the institution, appears to have been 621. In the following year there are 32 deaths reported, which would make 653; but only 553 are noted. This error is continued to the present time. In 1799, there are 38 deaths too many reported; which makes the real number of deaths 1235, or 1 in about 41½. This is exclusive of those reported "dying when called in;" so that the real mortality may be reckoned somewhat greater.

The number of fever cases is 5396, of which 199 died, being about 1 in 27;—this is more than the average mortality. Upwards of $\frac{1}{10}$th of the whole cases admitted are cases of fever.

It will be perceived, that the number of deaths during the years included in this Table, is greater than the average number of deaths upon the whole number; but it is more than probable, that the deaths from the year 1783 to 1795, had only been inaccurately noted, or had been put under the head "dying when called in." It ought to be stated, that one patient may be admitted two or three times during the year, though I have reason to believe that this is very seldom the case at present; still the remark may tend to explain how it happens that the mortality among the patients at the Dispensary is about the same as that among the community. It occasionally happens too, that patients who have attended an institution a long time, without deriving much advantage, as they suppose, decline attendance upon, or advice from medical men. It must be recollected that patients are generally practical, not speculative philosophers,—they calculate the benefit received much more accurately than they appreciate the evils averted. Such non-attendance will also lessen the mortality among the patients at the Dispensary.

The people entitled to attendance from the officers belonging to the Kendal Dispensary, are the poor inhabitants of Kendal and Kirkland, unable to purchase medicines, and who bring a ticket of admission from any subscriber, or from an overseer of the poor, if they receive a pension from the town. Such patients as are able to come to the Dispensary, are desired to attend at certain hours. Patients incapable of coming to the Dispensary are visited by the physician, surgeon, or apothecary, as their cases may require, at their respective places of abode.

The sums opposite the annual number of patients are for medicines alone; and it is somewhat remarkable to observe the difference of expense in different years. In a comparison between the years 1819 and 1820, there is a saving of 208*l.* 16s. 9½d.; and between 1819 and 1821, a saving of 182*l.* 5s. 10¼d., making a saving in the last two years of 391*l.* 2s. 7¾d. The vaccinated in this comparison are deducted, in all the three years. In the year 1819, there were 221 vaccinated; in 1820, only 102 vaccinated; and in 1821, only 73. The accuracy of this statement is proved by a reference to those years, as shown by the Table.

	Kendal.	Kirkland.
Inhabited Houses, - -	1881	124
By how many Families occupied, -	2040	330
Houses now Building, - -	49	—
Houses unoccupied, - - -	48	—
Families employed in Agriculture, -	130	49
Families employed in Trade, -	1610	185
All other Families, - -	300	96

Age.	Population of Kendal. Males.	Kendal. Females.	Kirkland. Males.	Kirkland. Females.	Total in every period.
under 5	683	630	125	121	1559
5 to 10	572	567	81	71	1291
10 – 15	440	498	63	62	1063
15 – 20	389	414	42	59	904
20 – 30	553	801	98	113	1565
30 – 40	511	601	75	89	1276
40 – 50	408	487	55	77	1027
50 – 60	287	390	41	52	770
60 – 70	184	266	30	46	526
70 – 80	85	147	23	40	295
80 – 90	26	43	4	9	82
90 – 100	1	1	1	1	4
	4139	4845	638	740	Kendal and Kirkland.
	8984		1378		10,362
Population that attend Chapelries in the vicinity of Kendal, and that bury in Kendal Churchyard, -					2,182
Grand Total -					12,544

In 1793.	1801.	1811.	1821.
Population 8089	7978	8759	10,362

BURIALS in Kendal Churchyard, from 1811 to 1821.

Died in the years	Died under 5 years.	5 to 10.	10 – 15.	15 – 20.	20 – 30.	30 – 40.	40 – 50.	50 – 60.	60 – 70.	70 – 80.	80 – 90.	90 – 100.	Total.	Males dead.	Females dead.	Deaths among Dissenters not buried at Church.
1811.	79	9	5	6	8	3	21	8	24	23	19	3	208	106	102	19
1812.	46	9	3	6	15	19	20	22	26	35	19	5	223	105	118	18
1813.	72	15	14	8	23	8	13	20	20	22	29	7	252	93	159	23
1814.	89	19	8	4	19	14	18	15	32	25	18	-	261	136	125	17
1815.	57	10	8	10	14	14	13	13	30	25	14	3	211	105	106	10
1816.	124	12	8	6	13	10	10	14	33	31	19	2	282	136	146	24
1817.	103	23	10	7	18	12	23	21	24	26	15	5	287	144	143	14
1818.	78	7	6	10	23	15	16	23	24	39	14	5	260	110	150	16
1819.	74	19	4	9	26	16	11	26	32	36	25	4	282	135	147	22
1820.	152	30	15	15	9	18	15	13	21	52	15	3	356	154	202	28
1821.	162	12	8	10	10	22	16	15	17	29	8	5	314	169	145	25
Total Deaths	1036	165	89	90	178	151	176	190	238	343	195	40	2936	1393	1543	216
Deaths among Dissenters	49	5	7	5	14	17	12	14	29	37	22	5	216	Males.	Females.	
	1085	170	96	95	192	168	188	204	267	380	217	45	3152			
Deaths among Dissenters not buried at Kendal Churchyard, and whose ages have not been ascertained													92			
													3244			

Total number of deaths 3244 in a population of 12,544, in eleven years, viz. from 1811 to 1821, inclusive.

Years.	Baptisms at Kendal Church.			Burials at Kendal Church.			Marriages at Church.	Births among Dissenters.	
	Males.	Females.	Total.	Males.	Females.	Total.		Male.	Female.
1811.	106	110	216	106	102	208	101	18	19
1812.	120	115	235	105	118	223	105	31	22
1813.	150	151	301	93	159	252	101	18	14
1814.	133	121	254	136	125	261	84	18	23
1815.	192	159	351	105	106	211	119	26	16
1816.	155	158	313	136	146	282	113	23	22
1817.	177	146	323	144	143	287	110	20	23
1818.	140	164	304	110	150	260	85	22	14
1819.	172	155	327	135	147	282	105	22	22
1820.	189	167	356	154	202	356	109	26	23
1821.	195	164	359	169	145	314	99	20	18
	1729	1610	3339	1393	1543	2936	1131	245	216
Dissenters Male and Female .	245	216	461	Marriages at the meeting of the Society of Friends - -			13	461	
	1974	1826	3800				1144		
About 100 births among Dissenters not registered.			100						
			3900						

Total number of Deaths - - - - - - -	3244
Total number of Births - - - - - - -	3900

This does not include the Births at the Chapelries, in a population of 2182.

In this Table is presented a statement of the population of Kendal and Kirkland, as complete as the nature of the documents I had recourse to would permit. The average annual mortality from this Table, appears to be about $39\frac{1}{3}\frac{8}{2}\frac{5}{4}\frac{3}{4}$. In the year 1811, the population was 8759; this number was multiplied by 6. The present population, viz. 10,862, was multipled by 5. The 2182 who reside in the country, but who bury in Kendal, by 11, as the increase of population among them was trifling. The three sums were added together, and divided by the whole number of deaths, which gives the average mortality annually of $39\frac{1}{3}\frac{8}{2}\frac{5}{4}\frac{3}{4}$. I am far from flattering myself that inaccuracies may not have crept into this Table, of which I am not now aware. The undertaking was so foreign to my usual pursuits, that I despaired at the commencement of even putting it into such an intelligible shape as it now appears in. To those who have never attempted to form such a Table, no notion can be formed of the labour attending its construction. The people intrusted with registers of births, marriages, and funerals, are generally unwilling to allow access to them; and it is frequently, not till after several fruitless efforts of their own to give a correct return, that they are at length persuaded to grant the indulgence of a personal inspection.

The most accurate bills of mortality that probably have been kept, are those in Sweden and Finland, where a Board for the purpose is appointed by the Government, (called the Tabellvärket.) In this country, the late Dr Heysham of Carlisle distinguished himself in this pursuit; and his Tables are reckoned still among the most authentic records of the kind. By one of his Tables it appears, that out of 10,000 children born, 3203 died under 5 years of age; and the remaining 6797 completed their fifth year. Also, that out of 6797 children who attained to 5 years of age, 6460 survived their 10th year.

This Table also shows, that of 6460 who attained to 10 years of age, 6047 survived 21; and that of 5075 who arrived at the age of 40, only 3643 survived their 60th year.

It will be found, upon comparison of this Table with that of Dr Heysham, that they nearly coincide; for, supposing, that the population was stationary, of the 3900 children born, according to the computation of mortality with Dr Heysham's Table, 1249 ought to have died under 5 years of age, whereas only

1085 are found in that column, laying aside the increase of population. Certainly there is a greater number under 5 years of age now in Kendal, than was in 1811. This diminution of mortality under 5 years of age, is ascribed to the practice of vaccination; and, had it been more general in Kendal, the mortality would have been less. I am sorry to observe, in last year's Report of the Dispensary, 10 deaths from small-pox. Towards the latter end of 1820, and in the beginning of 1821, the mortality among children was very great, as appears from the Table. Small-pox, natural and modified, scarlet fever, measles, and hooping-cough, were epidemic in Kendal nearly at the same time. In this Table, considerably more than one-third of the whole deaths are under 5 years of age; and nearly as many under 5 years of age, as between 5 years and 60, being only a difference of 28 between 1113 and 1085. From this Table too, it appears, that one half of the deaths take place under 30 years of age. In the Carlisle Table, of the 10,000 children born, 5075 survive the age of 40,—953 attained to 80 years of age,—142 to 90,—and 9 attained 100 years,—one died aged 104 years. In this Table, 44 have died between 90 and 100; one included in this column died at the age of 102,—she belonged to that respectable body, the "Society of Friends."

The births in Kendal are in proportion to the number of the inhabitants, as one to 26. In France, Necker says, the births vary from 23 to 30, according to circumstances. *

There may be many other comparisons made between this Table and the one alluded to; and some curious information may still be elicited from the Table itself, by comparisons which have not been pointed out. There are many circumstances connected with the topography of this place, which I have not even dared to mention. It is well observed by Sir Gilbert Blane, that "Medicine embraces by far the widest range of knowledge of any of the liberal arts or sciences." Indeed, there are few men who possess acquirements sufficient to enable them to give a complete account of all the fortuitous circumstances which affect the health of the inhabitants of a town or district. It may appear strange to close the topographical account of a place without saying something of the river, spring, or well waters. The waters in the different springs and wells in this town, vary so much according to the soluble materials through which they filtrate on their way to the surface of earth, that it would require more time, and a greater share of chemical skill than I possess, to give an accurate account of their different ingredients.

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* Traité de l'Administration des Finances de France.

Some of them contain considerable quantities of muriate of soda, sulphate of lime, sulphate of potash, carbonate of soda, &c.

"What subject," says Burke, "does not branch out into infinity! It is the nature of our particular scheme, and the single point of view in which we consider it, which ought to put a stop to our researches."

Kendal, 27th February, 1822.

XIII.

Case of Tumours in the Skull, Dura Mater, and Brain. By J. H. Wishart Esq., F. R. S. Ed., President of the Royal College of Surgeons of Edinburgh.

Michael Blair, æt. 21, June 1819, applied to me about the month of November last, on account of a deafness affecting both ears, which had been coming on gradually for several weeks. On examination, some wax was observed in the ears, and they were directed to be syringed. At the interval of two days he returned, and there was no change in his hearing. He was directed to drop into the ears a very weak *ol. ammoniatum.* Some days afterwards he returned, accompanied by his father, who mentioned to me, that his son had neglected to point out a small tumour on the back part of his head, which he thought was connected with the deafness. On examination, I found, at the upper and left side of the occipital bone, a tumour of the size of a common nut, on which he could not bear the slightest pressure to be made, from the violent pain it excited. I further observed on the fore part of the head, near the junction of the coronal and sagittal suture, a very firm hard swelling of an oval shape, of the size of a flattened walnut. Pressure on this part occasioned no uneasiness.

His father gave the following history of his son's disease. From his infancy, he had had a peculiarly shaped head, being considerably longer than natural, and much flattened at the sides. About four months after birth, he was discovered to be blind of the right eye; from which circumstance, together with the great size and weight of his head, he was very liable to fall; and when between four and five years old, his head was severely cut by falling on a washing-tub. At thirteen years of age, he was bound apprentice to a gardener; and, while in his employment, he received a violent blow on his head with a pitchfork, a little to the left of the union of the coronal and sagittal sutures. Very soon after this accident, a tumour arose on this place, and increased gradually to its present size, but unattended with pain. For the last four years he has worked as a journeyman baker. During this time, he has been frequently affected with headach and vomiting, which he ascribed to the confined and heated air of the bakehouse. About two years ago, while carrying a heavy load of bread on his head down a steep street, he slipped and fell on the back part of his head. He was completely stunned by the fall, but soon recovered so far as to be able to deliver the bread he was carrying. From this time his hearing was observed to be affected. In August 1810, a small tumour was observed in the situation of the last mentioned injury, at the upper and left side of the occipital bone. It has been always extremely painful to the touch.

Considering, from the preceding history, that the symptoms were more particularly connected with the existence of the tumour at the posterior part of the head, I proposed to make an incision into it to ascertain its nature. To this, however, the lad would not consent, and I did not see him again for several months. About the beginning of June his father came to me, and said his son was now very desirous that something should be done, as he was much worse. On visiting him, I found the tumour at the posterior part rather increased in size, and still as painful to the touch. He had become quite blind and deaf. His father mentioned that he had lost his hearing first, and that, for some weeks, they had answered his questions by writing on a slate. The pupil of the eye was completely dilated, as in a case of amaurosis. For six months past, he has been attacked every eight or ten days with violent paroxysms of pain, which continue for three or four hours. At the commencement, he complains of a very peculiar and disagreeable smell. During the paroxysm, the pain extends from the tumour in the back part of the head, through the whole muscles of the neck and back, and likewise to the forehead, lower jaw, arms, stomach, and the muscles of the abdomen, which are at the time as hard as a board. He at the same time is unable to move the lower jaw; the muscles of the face are affected with twitching; the trunk of the body is drawn backwards; and some of the fingers are deprived of feeling. At the termination of the paroxysm he frequently falls into a profound sleep, which sometimes continues for three days, with scarcely any intermission.

Entertaining still the same opinion of the treatment of this case, I requested my friend Dr Abercrombie to accompany me on the 10th June to see this patient. He concurred with me in proposing to make an incision into the small tumour, to ascertain its nature. Accordingly, the lad was placed on a chair, and a crucial incision was cautiously made with a scalpel over the tumour, extending to the bone on each side. On examination, we found that there was a small opening in the cranium, and that the tumour protruded through it, covered by the dura mater. A very small puncture was made in the investing membrane with an eye-instrument, but no discharge took place. Conceiving that no advantage would accrue to the patient by prosecuting the examination further, the wound was dressed with a pledgit of simple ointment, pressed gently between the lips of the wound, to prevent them adhering; and the patient was put to bed. He bore the operation tolerably well; and complained more of the blood accidentally running down his back, than of the severity of the pain. He got a draught with forty drops of laudanum.

On the following day, I found that he had continued tolerably easy for several hours; but, early in the morning, he had been attacked with vomiting, which was almost incessant. During the intervals he was very low, and his pulse was so weak, it could scarcely be felt at the wrist. Effervescing draughts and other remedies were used to stop the vomiting, but with very little effect, as it continued for two days. On examining the wound on the 13th, a very small fungus, about the size of a pea, protruded through the puncture made in the membrane covering the tumour. The patient did not complain more than he used to do on its being touched; and he had been able to take some food, the vomiting having stopped. On the 20th, the dressings were observed to be soaked with fluid; and on pressure, clear serum passed out by the puncture; the fungus had increased to the size of a nut. On the 22d, he seemed considerably better; he said to his parents that he thought he could see their shadow when they passed between him and the window; and when I held up my hand before him, he said he noticed something, but could not say what it was. He also observed, that he thought he could hear the sound of their feet when walking in the room. The serous discharge continued, along with a considerable quantity of purulent matter from an abscess which had formed under the integuments, close to the incision.

On the 24th, about 4 *a. m.*, he was suddenly attacked with one of the paroxysms formerly mentioned, became quite unmanageable, and screamed aloud from the violence of the pain, and continued in that state for several hours. When I saw him about one o'clock, he seemed quite insensible, was very restless, and had not spoken or swallowed any thing for several hours. The pulse was very quick and strong, and the pulsation of the temporal arteries was evident to the eye. I attempted to bleed him from the arm; but, from his restlessness, the blood could not be made to flow. Calomel and senna tea were ordered; but he appeared to have lost the power of swallowing; and he remained nearly in the same state till about *5 a. m.* on the 24th, when he expired.

DISSECTION.

The head being opened in the usual manner, the following appearances were observed. The cranium was of irregular thickness, and diaphanous in many places; but it was very dense and heavy, and sawn through with considerable difficulty. On examining the seat of the different tumours, several peculiar circumstances were discovered. The pericranium, in the region of the posterior tumour, was very much thickened and indurated, and firmly attached to the superincumbent integuments. The tumour itself seemed to have originated in the diploe; for it was observed that the external table of the cranium was much more eroded than the internal, and the latter was perforated with a small opening, by no means corresponding to the size of the tumour. The part of the brain immediately under this tumour was found considerably diseased, being soft, fungous, and of a dark colour. The tumour in the anterior part of the cranium seemed to have been formed in the same manner as that in the posterior, the external table being eroded in that part; but the internal, though rendered thin and diaphanous, was still entire. The tables of the skull were distinctly separated from each other for some distance; and it was to this circumstance that the anterior swelling was owing. The space between them was occupied by a whitish substance, somewhat resembling the medullary part of the brain. The pericranium round this tumour was quite natural.

The dura mater being next examined, the following diseased appearances presented themselves. Its general texture was natural; but a number of tumours of different sizes and forms were discovered attached to the internal layer of that membrane. Most of them adhered to the falciform process. These tumours, which were from the size of a walnut to that of a pea, were of a spongy and fibrous structure, and readily separated from their attachment; and depressions were found in the brain corresponding to each of them. On the outer and anterior part of the right hemisphere, there was an indurated portion, the size of a small egg, which seemed to be confined to the cineritious substance. It adhered firmly to the *dura mater*, which was at that place considerably thickened. The lateral ventricles were extremely large, and filled with a serous fluid. The substance of the brain itself was quite natural, except in the place before-mentioned.

The brain being now removed from the cranium, most of the nerves which proceeded from it were found in a diseased state. The 5th and 7th pairs were particularly affected. A tumour about the size of a split pea, and of considerable hardness, was attached to the 5th pair on the left side, immediately before it divides into its three branches; and the filaments of that on the right side had adhering to them a number of small hard tumours, of the size of a large pin's head; the filaments themselves were remarkably distinct, and somewhat larger than usual. The 7th pair was diseased in the same manner; a tumour of the size of a small nut, and very hard, being attached to each of them, just where they enter the *meatus auditorius internus*. Similar tumours, of the size of a pea, adhered to the *nervi accessorii* within the cranium, about an inch from the *foramen magnum*. It is most probable that these tumours on the nerves arose rather from the dura mater which envelopes them, than from the nervous substance itself. The cerebellum was natural, but was very much encroached upon, by a large tumour about the size of a walnut, growing from the upper part of the *septum cerebelli*. This general tendency to the formation of tumours seemed to proceed also down the *medulla spinalis*.

XIV.

Contributions to Surgical Anatomy. By JOHN LIZARS, F. R. S. Fellow of the Royal College of Surgeons, and Lecturer on Anatomy and Physiology, Edinburgh.

> "I had rather give descriptions and drawings of the herniary sac in its various stages of inflammation and adhesion, or point out any thing which might facilitate so eventful an operation as that of hernia, than discover the perennial mysteries of the thymus or renal gland."
>
> JOHN BELL.

It is only when the surgeon has made his first incision through the skin of a strangulated inguinal or crural hernia, that he finds that all he has been taught in the dissecting room is of no avail. He looks in vain for a *fascia superficialis*—a cremaster muscle—a *fascia propria*—or even a herniary sac. All is matted together, and some of them not even to be found. It is the painful experience of having felt these dilemmas, that I have carefully noted down what has occurred in the dissecting room since I began to teach.

The anatomy of hernia varies more than that of any other surgical disease; and the malady is one of such interest, one in fifteen being afflicted with it, according to the calculations of Gimbernat, Arnaud and Turnbull, that I shall make it the subject of this first contribution.

From the examination of many subjects, I have observed, that in females, contrary to the common opinion, the crural aperture is as much shut up as in males—that the *fascia cribriformis* is as strong and dense, nay, in many cases even more so. Equally so is the alleged *fascia propria.* Three female subjects were brought in last season, who had inguinal hernia—one simple, another ventro-inguinal, and the third had been operated on. This last occurred on the right side; the portion of intestine was the *caput cœcum coli*, and had no peritoneal sac. In the ventro-inguinal, the epigastric artery ran on the iliac side of the aperture. This poor woman had laboured under aneurism of the thoracic aorta—it has made a splendid specimen. As a corroborative proof that females are nearly as subject to inguinal as to crural hernia, three cases occurred this last winter, in one of which I was present at the operation. It appears difficult to distinguish in the living state before an operation, whether a female is affected with inguinal or crural hernia; and I am doubtful whether the calculation recorded in the valuable work of Mr Lawrence can be depended on. Anatomy convinces me, that a female should be as subject to inguinal as to crural hernia; and the short distance of space between the external aperture of the inguinal canal and the crural aperture, equally satisfy me how difficult it is to distinguish the one from the other, particularly when we consider that the crural hernia, as it increases in magnitude, turns up to the inguinal aperture. In practice, I can testify that I have seen the most experienced deceived as well as myself.

Two peculiar cases of tumours in the region of the groin, occurred in the dissecting rooms. The tumour was of the pancreatic kind, but very soft and elastic, and was contained in a strong cyst of smooth cellular membrane.—It resembled a portion of intestine. The tumour protruded at the crural aperture, and a portion was found within the abdomen. About three years ago, I was called in to operate upon a case of precisely the same nature. The patient was the mother of a medical officer in the army. This gentleman had tried every means to reduce the tumour. His mother mentioned, that she had been subject to rupture for many years, and that she had been generally able to reduce it. Before proceeding to operate, I suggested that more advice should be taken. One of the first surgeons in town, one for whose opinion I feel the greatest reverence, was called in, and agreed to the steps proposed, never doubting that it was a hernia, the symptoms were so unequivocal. The operation was begun; the tumour appeared to have a herniary sac; and the tumour itself to be a portion of healthy intestine. It was returned, the wound closed, the lady put to bed, and the most sanguine expectations entertained of the success of the operation. It was unfortunately done in candle-light, the time being about nine in the evening. The symptoms continued as violent after the operation as before, the stercoraceous vomiting continued the same, and she expired seven hours after the operation. On dissection, this deceitful tumour was found returned into the abdomen; the omentum adhered to it, and bridled down the jejeunum, so as to prevent the passage of the food. The intestine above this was inflamed, and verging to gangrene; that below was perfectly healthy. Another case precisely similar has occurred since, in which I was present during the operation and dissection.

An intelligent pupil, Mr Malcolm, discovered, that the valve of the colon may be overcome, and fluid forced in the retrograde direction, by pressing on the abdominal parietes in the right iliac region over the *caput cæcum*. This pressure has the effect of compressing the colon between the anterior muscular parietes and the internal iliac muscle, so as to approximate the commissures of the valve, and thus to open it. Whether it may be so easily overcome in the living state, I have not had an opportunity of ascertaining; but a case of hernia occurred a few days ago, where injections *per anum* passed through the valve into the ileum, and flowed out at a false anus in the left groin. This patient was not *in articulo mortis*, but had considerable strength.

With regard to the *fascia superficialis*, in nine cases out of ten it is found so thin and delicate, that I direct my pupils to dissect it off along with the skin, as I consider that the viewing it as a fascia is liable to deceive the young surgeon when he comes to operate, for then it must be generally thinner. In a congenital inguinal hernia in a man on whom I operated, I found none. In Dr Monro's able work on Crural Hernia, the thinness of this fascia is satisfactorily established. As for a *fascia propria*, I have neither observed it in dissection nor in operating.

The obturator artery I have observed to be fully more frequently a branch of the epigastric, than of the internal iliac artery. In many subjects, the artery on the one side has come from the internal iliac, and on the other from the epigastric. In others, the artery has been regular on one side, while, on the other side, the artery has been formed by a branch both from the internal and external iliacs. If this artery is irregular in its origin, much more so is its accompanying vein in its course and termination; for, sometimes, although the artery is regular, the vein runs up to terminate in the epigastric or external iliac vein. There are frequently two veins, the one running along with the artery to join the internal iliac vein, the other proceeding to terminate in the epigastric vein. From these variations in the obturator artery and vein, the surgeon, in every case of operative crural hernia, should be on his guard not to insinuate the blunt pointed bistoury too deeply into the pelvis when cutting Gimbernat's portion of the tendon of the external oblique muscle. In two morbid cases which I dissected, the herniary tumour had so raised the obturator artery, that it was quite removed from the knife—provided this had been directed horizontally, so as to cut only Gimbernat's ligament. I am aware that these deviations of the obturator artery have been taken notice of by Jacobius Sylvius, Haller, Portal, Sir A. Cooper, and by our able anatomist Dr Barclay. I have merely generalized and extended them a little further, and pointed out the same irregularity respecting the vein.

In all muscular subjects, I have been able to show distinctly tendinous fibres of the transversalis muscle passing beneath the spermatic cord—muscular and tendinous fibres of the internal oblique muscle passing also beneath the cord—the same as is the case with the external oblique. So that I should say, with Vesalius and the earlier anatomists, that the spermatic cord, or round ligament of the uterus, pierced the three lateral muscles of the abdomen; and, consequently, I should be inclined to leave out of consideration the *fascia transversalis*; for it is no more a peculiar fascia than the investing cellular sheath of any other muscle. In the same way, I should be disposed to go back to Vesalius, and do away with Fallopius's and Gimbernat's ligaments; for they are strictly the tendons of the external oblique muscle. The viewing them as ligaments deceives the surgeon in the attempt to reduce the hernia; he conceives it not to be influenced in the position of the trunk or limb. It ought to be our duty to simplify, not to render complex, the study of anatomy. The young student, whatever may be his habits of application, feels the perplexity; and the more he advances, the more bewildered he becomes in his conceptions of the anatomy of hernia. Work after work has been published on the subject, and the more and more confused and intricate are the descriptions of the author;—there appears, as it were, a mystery about the subject. It may be pronounced the arcanum of surgery. Books seem to have been consulted more than Nature. It must appear strange that, according to the representations of modern surgeons, Vesalius, Eustachius, Cowper, Albinus, * and Douglas, should all have erred in their conceptions and descriptions of the anatomy of inguinal hernia. But I believe it will be found that the errors of surgeons have discovered more fasciæ, and more varieties in muscles and arteries, than ever were demonstrated by the labours of anatomists.

Although foreign to the title of this paper, yet the following observation is so connected with hernia that I shall prefer its insertion here, and defer saying any thing further on surgical anatomy till another opportunity, when I shall point out several peculiarities of nerves, arteries and muscles.

For these many years past, I have used for reducible hernia, either in the adult male, female, or in children, a strong decoction of oak bark, with wonderful success. In men I have succeeded in curing them from birth to 75 years of age, and in women to 50 years of age. Children are very easily cured by this means, particularly of the umbilical hernia.

The manner of preparing the decoction is, to macerate a few pounds of oak bark, in a sufficient quantity of cold water, for twelve or twenty-four hours, then to put both bark and solution into a large boiler, and to keep the fluid at the boiling temperature, over a gentle fire, for two or three days, adding, when required, boiling water from time to time, so that the bark may be always covered. The intention is to extract all the virtues of the bark. The bark, after this slow decoction, should be removed, washed with more boiling water, which is to be added to the strong decoction, and reduced to the consistence of nearly an inspissitated juice, When used, it should be warmed, to suspend the astringent matter; the hernia must be previously reduced; then the groin bathed or splashed, and the truss applied immediately after. The application should be repeated three or four times a day. In this way I have succeeded in curing herniæ of many years standing, in the course of a few weeks. In general, it requires a perseverance of three months. A case of double rupture, one of which the patient had labour-

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* Albinus alone, of these authors, says that the spermatic cord passes beneath, not through, the transversalis muscle. He however agrees with these anatomists respecting the internal oblique. He thus expresses himself—" Et tum supra, tum infra vasa spermatica decurrit."

ed under for twelve years, was cured in nine days. He was 36 years of age, and had been invalided out of the public service for the complaint. In umbilical hernia, so common to children, it succeeds very soon.

The modus operandi appears to be, *first*, the corrugation of the skin and contraction of the muscles; *secondly*, increased determination to the part; *thirdly*, a deposition of substance, most probably cellular substance, which effectually shuts up the aperture. That there is a contraction of the muscles, we are entitled to conclude, from the tumour not so readily protruding after each application of the decoction. That there is a local determination, is evident from the stimulus applied, and the heat produced. *Lastly*, that a deposition of substance takes place, we are entitled to infer, by the treatment proving effectual in the cure of crural hernia, where no muscular contraction can take place to any extent.

This invaluable remedy was mentioned to me by a merchant in this neighbourhood, who cured himself after having laboured under the disease for many years. In 1757, an hospital was constituted, near Westminster Bridge, for ruptured people, and a Mr Lee of Arundel Street was appointed surgeon. This gentleman is said to have been successful in curing men belonging to the army and navy, after they had been invalided and sent to Chelsea and Greenwich Hospitals. These men were returned fit for the service. One was 74 years old, and had been ruptured for ten years. I can find no trace of the treatment adopted by this gentleman; but it is possible that it may have proceeded on the same principles.

39, *St Andrew's Square.*

(To be continued.)

XV.

Case of Purpura Hæmorrhagica. By GEORGE JOHNSTON, M. D. Surgeon, Extraordinary Member of the Royal Medical Society of Edinburgh.

ALTHOUGH in the Edinburgh Medical Journal pretty ample materials for a history of the *P. hæmorrhagica* have been collected, yet the following case may perhaps be deemed interesting enough to obtain a place in that useful work, since it differs from any that has as yet been recorded, both in the violence of the febrile symptoms, and in the rapidity with which it proceeded to a fatal termination. Should it be supposed, from an examination of the symptoms individually, that the case was merely an aggravated one of our ordinary fever, I must say, that the appearance of the patient, and the grouping of the symptoms, communicated a very different impression to the medical attendants. It was, indeed, the observation of Dr Robertson, who is practically well acquainted with the fevers both of this and of other countries, that the case had no resemblance to any of them; nor were we aware of any disease to which it bore so close a relation as the *purpura hæmorrhagica*.

Sunday, February 3d, 1822, 10 *a. m.*—Mary Gill, aged 18, married, of a stout and robust form, complains of intense pain in the head and small of the back, attended with great oppression in the chest, and the feeling of burning heat over the whole body. The skin is red, something like that of a person labouring under scarlet fever; and the whole surface, with the exception of the face and arms, is closely covered with innumerable petechiæ, some of a bright red, others of a purple colour, and varying in magnitude from a mere point to a silver penny. Her arms are quite free of them, but sprinkled over with a considerable number of small, elevated, circular spots, resembling, in every respect, those produced by the sting of the nettle. The conjunctiva of both eyes is in a state of excessive ecchymosis; so that no part of the white can be seen. The pupils are contracted, but no complaint is made of the light. She has had no delirium. The tongue is covered, partly with a dark brown, partly with a white fur; has some cough, and the sputa are bloody. The lips are parched, and rather livid, and blood oozes from the nostrils. Respiration is very rapid, and performed with difficulty; the pulse is so quick and weak that it cannot be numbered. No passage in her bowels has taken place since the commencement of the disease; and the urine is scanty, and deeply tinged with blood. Catamenia ceased fourteen days ago.

On the evening of Sunday last, she was seized with headach and cold shivering, succeeded by the ordinary symptoms of fever,—increased heat of skin, anorexia, and pain of the back and lower extremities. She continued in this state, yet not so unwell as to be entirely confined to bed, until Thursday, when an eruption, compared by the attendants to that of the measles, was observed to cover the whole surface, attended with an increase of all the febrile symptoms. On Saturday every symptom became aggravated; and it was now for the first time that the petechiæ and wheals were noticed. An injection was administered in the morning, which produced no effect; and in the evening she took four of the *pilul. colocynth. comp.*, and two every six hours subsequently, but without producing any evacuation from the bowels.

Fourteen ounces of blood were immediately taken from the arm, which induced a strong tendency to syncope. On recovering from this, she felt herself much relieved; the oppression in the chest was altogether removed; the breathing rendered comparatively easy; the redness of the skin disappeared; and a little of the white of the conjunctivæ became apparent. The bleeding from the arm was suppressed with difficulty.

℞ Calomelanas gr. v.
Pulv. jalapæ ℈i. Ft. pulvis statim sumendus.

½ past 3 *p. m.*—Patient apparently dying. She is however sensible, though it is with great difficulty she can be roused to answer any question. Complains of a pain in the throat; and, on examination, a diffused redness covers the whole upper palate; has spit blood copiously; face and lips pale, and somewhat livid; respiration fuller, and not so quick as in the morning; pulse very weak, and exceedingly frequent; surface of the body rather cold, but not clammy. A little blood, not exceeding an ounce or two, has escaped from the orifice in the arm; the purgative has had no effect. The blood drawn in the morning has not separated into serum and crassamentum. It possesses little consistence or tenacity; but there are traces of coagulable lymph diffused through it. Every attention had been paid to obviate the circumstances which might prevent the formation of a buffy coat.

At the request of a gentleman interested in the patient Dr Robertson now saw her. He directed an injection of a decoction of senna with sulphate of soda, and hot bottles to be applied to the feet; but before the former could be prepared, the approach of death became so evident to the relatives that it was not exhibited. She expired a little before six.

I opened the body twenty hours after death, in the presence of Dr Robertson. About a pint of bloody serum was found in each cavity of the pleura; the lungs were perfectly sound, and not adherent any where to the costal pleura. There was a blush of redness on the anterior surface of the pericardium, which contained between two and three ounces of serum. The heart was paler and smaller than usual, and was lacerated by slight exertions of the fingers. It was spotted with petechiæ, some red, others purple. They were larger than those on the skin, and most conspicuous about the middle of the left ventricle, and at the roots of the large vessels. The left ventricle was empty; the right was distended by a quantity of uncoagulated blood. Nothing could be more healthy than the exterior appearance of the abdominal viscera. The mesentery was thickly spotted with petechiæ (particularly near its connexion with the intestines), some of which were at least half an inch in diameter. The peritoneum was also spotted, particularly in the neighbourhood of the spleen, where it was indeed entirely purple. The inferior surface of the liver, and the internal surface of the stomach, were also covered with maculæ. The kidneys appeared larger than usual, and the medullary and cineritious portions more distinctly defined than in the healthy organ. The urinary bladder was empty; the uterus unimpregnated. On tracing the intestinal canal, no feces could be discovered throughout its whole extent; no emaciation had taken place; and the cellular membrane was loaded with fat. We regretted much that we could not examine the brain. The prejudices against opening dead bodies are here so strong, and consent in this instance was so reluctantly given, that it could not with propriety be done.

Berwick-upon-Tweed, February 11*th*, 1822.

XV.

Case of Purpura Hæmorrhagica (Hæmorrhœa Petechialis). By ANDREW DUNCAN, Junior, M.D. F.R.S. Ed., Professor of Materia Medica in the University of Edinburgh.

THE perusal of the preceding case recalled to my recollection that of a young man who died under my care in the Clinical Ward two years ago, and in whom many similar circumstances occurred.

John Davidson, tailor, aged 15, was admitted on the 13th of February 1820, affected with copious hemorrhage from the mouth. A single petechia was observed on the palatine arch of the left side; on the right, there was a livid blotch of the size of a half-crown piece; and in one part, on the verge of the anterior pillar of the fauces, and before the tonsil, which was considerably enlarged, it had degenerated into a circumscribed unhealthy ulcer, with a border of deep black, and covered by a viscid matter, not detached by gargling. He had also, over different parts of his body, particularly his neck, shoulders, arms and legs, a number of purplish spots, not raised above the surface, varying in size from the point of a pin to a common pea. They were not painful, and did not disappear on pressure; there was no point or depression in their centre; and they were distinct, not confluent. On the anterior part of the left leg, there was a livid blotch, resembling ecchymosis, darker in the centre than at the edges. His countenance was exsanguious; his gums were also pale, but not spongy; and his tongue was pale and moist. He complained of pain in his belly, sore throat, and much weakness; pulse 100, rather small; respiration not disturbed; heat 97; bowels not confined. For the last twelve months, he had led a very sedentary life, and had some symptoms of dyspepsia. About a month or six weeks before admission, he began to lose his health, and felt great weakness. Soon after this, he had sore throat, which he ascribed to his running into the cold air, after having been for some time exposed to the heat of a great fire. During the last month, he had expectorated some bloody sputum; but whether the sore throat or this symptom preceded, was not ascertained. On the 8th of February, the purple spots were first observed, and since that time they had not seemed to increase or decrease in number. On the 13th, at 5 *a. m.*, he dreamed that his nose was bleeding, and on waking he found that it was bleeding profusely; and before mid-day, when he came to the hospital, his father thought that he had lost about three pounds of blood.

On admission, he was still bleeding profusely from the nose or mouth, and he was ordered to have his body sponged with very cold water, acidulated with sulphuric acid, and to take gtt. xv. of *acid. sulph. arom.* frequently. This had the desired effect; he did not lose much more blood; and he had some refreshing sleep in the night. At our visit on the 14th, his countenance was very exsanguious, but easily flushed. He had two dark and fetid stools, and his heat had risen to 100, and his pulse to 120, and was sharp. This fever I considered as merely symptomatic.

After the loss of so much blood, the debility which it had evidently produced, and the danger of a return of the hemorrhagy, and of the patient sinking from exhaustion, the most natural idea would have been to have recourse to tonics and astringents; nor is the hypothesis, that the hemorrhagy depends upon too great tenuity of blood, so absurd as not to have warranted the trial of an eminently nutritious diet; but having known, from the experience of preceding observers, the inefficacy of these means; and an opposite or antiphlogistic treatment having been found successful under the direction of able observers, as venesection by Dr Parry of Bath, and purgatives by Dr Harty of Dublin, and further guided by the analogy of these purpuras with the purpura contagiosa, or petechiæ of contagious fever, in which we have found the antiphlogistic treatment so successful, I did not hesitate to employ it.

I directed him to be bled cautiously to the extent of ℥viii., both as a means of cure, and as I was anxious to see the state of the blood in this disease. When flowing, the blood was observed to have an unusual appearance, and was compared to arterial blood mixed with water; that is, its colour was florid red, and it had a kind of semitransparency. It coagulated very slowly; nor was the coagulum very firm. No serum was separated. The coagulum had the appearance of jelly, being tremulous and transparent, in itself almost colourless, but with a pink tinge, from the red globules which had sunk to the bottom seen through it. On the surface it was radiated, but had no appearance of a buffy coat. It had much the appearance that would be put on by mere mechanical separation of its parts; the whole red globules, which were unusually deficient in number, as is always the case after the loss of much blood, were lying almost loose at the bottom of the crassamentum; and the serum and fibrine formed a nearly colourless gelatinous mass over it.

From the nature of the disease, which in my opinion is a universal tendency to hemorrhage, there was one danger evidently to be feared from opening a vein, that the bleeding would not be under our control; but no difficulty of this kind was experienced; and the lips of the wound were soon glued together as usual, showing that there was no excessive dissolution of the blood.

As Davidson had two dark fetid stools, purgatives were indicated; and here there seemed to be a peculiar propriety in using saline purgatives; and of these, the acidulous saline purgatives were preferred. We found no great change at night. He had two stools more, but no return of hemorrhage.

15th.—Slight epistaxis in the night, five very dark fetid dejections, with a little blood in the last. Great fetor from his mouth. To correct this, and as the immediate danger seemed to depend upon a tendency to putridity or gangrene, I now ordered him Port wine, and cinchona with sulphuric acid.

On the evening of the 15th, a large clot separated from the throat; and he spat up some grumous blood. On the morning of the 16th, he felt better, and complained only of his throat, in which the petechia on the left side had increased into a large vibex, which emitted great fetor. As he had had no dejection for twenty-four hours, he got some cal. and jalap. and a rose gargle, in addition to the cinchona and wine formerly ordered. In the evening he complained of pain of epigastrium, increased on pressure, for which a blister was applied with relief.

But the night between the 16th and 17th was very distressing, and he had some stertor, which, however, probably arose from mere mechanical obstruction to respiration. In the morning, the throat was observed to be in a sloughy state, with great fetor. He had much febrile anxiety, great debility, but was not so sensible to the impression of cold air as he had been. As his belly was not moved, the *elect. purg.* was ordered in divided doses. During the day he slept much, and was drowsy at the evening visit.

18th.—Two copious fetid dejections had given some relief; but he had much nausea and vomiting in the morning. Throat still in a bad state. Treatment continued.

19th.—Slough removed from his throat; spit much grumous blood; tongue very dry and parched; and, at the visit, he was bleeding slightly at the nose; pulse 120, full and strong. As I conceived that the return of hemorrhage was from the impulse *a posteriori* being greater than the tender state of the vessels could bear, I resolved to make another trial of V. S., while I used locally a very stimulant gargle, which is employed much in the West Indies, and with very good effect in gangrenous sore throat, the capsicum, of which I ordered an infusion to be made in vinegar, to unite with the stimulant some antiseptic virtue. V. S. to ℥viii. nearly induced syncope. The blood, upon this occasion, differed from the former, in resembling diluted venous, instead of arterial, blood; in other respects, its mode of coagulation and separation was the same. As he had no dejection before the evening visit, he got gr. x. of calomel, which succeeded in producing three dejections, as usual very dark and fetid, and two of them passed unconsciously in bed.

During the greater part of the night, he lay in an almost comatose state. On the 20th, at the visit, his throat was quite gangrenous; pulse 140, sharp, and not without strength; urine high-coloured, and very albuminous, approaching to sanguineous; one dark fetid dejection.

21st.—Very ill indeed, although he reported himself better; gangrene advancing; and he continued to get constantly worse till he expired on the morning of the 22d, at 11 o'clock, being the 14th day after the appearance of the purpura.

State of the pulse, and heat, morning and evening, while in the hospital.

	13.	14.		15.		16.		17.		18.		19.		20.		21.	
	p. m.	*a.m.*	*p.m.*	*a.m.*	*p.m.*	*a.m.*	*p.m.*	*a.m.*	*p.m.*	*a.m.*	*p.m.*	*a.m.*	*p.m*	*a.m.*	*p.m.*	*a.m.*	*p.m.*
P.	100	120	120	104	100	120	124	120	120	120	124	120	140	140	156	150	180
H.	97	100	101	100	101	100	101	100	100	99	101	99	98	99		98	

Tongue became gradually dry, parched and black, and shrunk like that in typhous fever.

Dissection.—The body was examined on the 23d. The integuments were perhaps more livid than usual; the tongue was much thickened; there was gangrene of the *velum pendulum palati*, the tonsils, and the pillars of the fauces; the glottis and epiglottis were inflamed; but the redness did not extend into the larynx. The pleura was marked with petechiæ, and there was an ecchymosis on the right side of the spine; the lungs were healthy; the heart was beautifully studded with petechiæ, some florid, some deep red, some purple; the colon, mesocolon, and the mucous coat of the stomach and of the bladder, presented the same appearance.

The brain was not examined.

Although after admission his pulse and heat showed the constant presence of pyrexia, and although, towards the end, he had coma and black shrunk tongue, yet I considered the fever to be merely symptomatic, and excited by his general suffering, and not a case of typhus with petechiæ, because the petechiæ were present some days before the fever began; whereas in typhus they only occur during the progress of the disease; and although hemorrhage occasionally occurs in typhus, yet it is either from plethora at an early period, or from dissolution of blood in an advanced stage. Also, the appearances on dissection were such as do not occur in typhus.

From the symptoms, this case was evidently an instance of the purpura hemorrhagica of Willan, in which the patient died, not so much from loss of blood, as from inflammation of the throat, and gangrene from effusion of blood into the tonsils and posterior fauces. I have great doubts, however, of the propriety of considering this as a cutaneous disease, not only because the hemorrhage is much more important than the visible spots on the surface; but from the dissection of our patient we saw, that the petechiæ were not confined to the dermoid system, but were equally frequent on every internal surface of the body, on the pleura, pericardium, and on the peritoneum, among the serous membranes; and on the mucous membrane of the trachea and stomach, intestines and urinary bladder. The pathology of this disease is extremely obscure, and might give rise to much speculation. The disease is essentially a hemorrhage, for each petechia is in fact a little ecchymosis; and the great and characteristic peculiarity of the affection is, that minute hemorrhages take place nearly at the same time on very distant parts of the surface, and in some instances, at least, on the serous and mucous membranes. In petechial typhus fever, where disease has evidently altered both the fluids and solids and the vital powers, we can conceive this phenomenon to take place more readily; but that a thousand minute hemorrhages should occur in one night upon a person in ordinary health, is very unaccountable; and in our patient, on the skin at least, the effusion was never renewed, although, in most instances of this disease, the affection is chronic; and fresh spots appear from time to time, while the old ones fade.

The possible modes in which I can conceive this disease to arise, are,

1st, Increased tenuity of the blood, allowing it to escape from the superficial extremities of the minute arteries.

2d, Dilatation of the mouths of these arteries, allowing natural blood to escape.

3d, Tenderness of the coats of the minute vessels giving way from the ordinary impetus of the blood.

4th, Increased impetus of the blood rupturing healthy vessels.

5th, Obstruction in the vessels causing rupture with natural impetus, and without increased tenderness.

6th, Two or more of these causes may act simultaneously or successively. In no other way can I conceive purpura to appear; and yet I cannot reconcile any of these suppositions with the phenomena of the disease. In our patient, before the appearance of the eruption, there seems to have been no increased action of the heart or vascular system; nor is it easy to imagine how any sufficient tenderness of the vessels should take place at the same moment so generally. It is more easy to conceive that a sudden relaxation of the mouths of many extreme vessels should take place at the same time, or that the disease was owing to an increased tenuity of blood, which, when it amounted to a certain degree, would allow it to escape from all the open mouths of extreme vessels of a certain size. But these are only the least improbable conjectures.

In such uncertainty of the pathology of this affection, the treatment is perfectly empirical, and almost fortuitous.

XVI.

Case of Neuralgia Facialis, or Tic Douloureux, relieved by Carbonate of Iron. By Dr Wadell, Assistant-Surgeon, H. C. S. Communicated by Dr Q. Adam, Assistant-Surgeon, H. C. S.

Mr A., H. C. S., aged 67, related to me, that, so far back as the year 1812, he was suddenly seized with excruciating pain in the left side of the face, extending along the teeth of both jaws, and shooting towards the eye and ear of the same side, causing an abundant effusion of tears, and severe otalgia. There was no swelling, heat, nor perceptible redness of the surface; yet the most gentle touch, or the lightest covering, aggravated the pain to an exquisite degree. His tongue, during the height of the paroxysm, was drawn towards the affected side, and curled upwards and backwards in the most singular manner. From the first attack down to last March, he had frequent similar paroxysms, with this peculiarity, that even during the intervals, he was never so entirely free from pain as to be able to eat without inconvenience. He used but few remedies; and of these, laudanum, dropped into the pained ear, and local warmth, alone gave relief. After so long protracted suffering, he accidentally met with two small pamphlets treating of the disease, in which the *carbonas ferri* was strongly recommended as a remedy; and he immediately resolved on giving it a trial. A quantity of it being procured from the Presidency, he commenced, on the 22d March, by taking a drachm for a dose twice a day; and on the fourth day following, the pain entirely ceased. Astonished, and gratified, at what he naturally enough, considered so decisive a proof of the efficacy of the medicine, and desirous of securing himself against a relapse, he persevered in its use till the 30th of the month inclusive, during which time he had taken 2 oz. and 3 dr. of the carbonate, being all that he had. Having obtained a further supply on the 4th April, and fancying he felt something like a return of the pain in the angle of his jaw, he recommenced with the same good will, and by the 26th of the same month, had taken 2 oz. and 6 dr. more; in all, five ounces and one drachm.

Four days afterwards, I was summoned to attend him, and found him labouring under a slight febrile affection, of which the state of his bowels sufficiently indicated the cause. It appeared, that for several weeks before, his bowels had been much constipated, and he had two or three times had recourse to castor oil. His stools consisted of hard dry scybalæ of a sooty colour. I gave him a few grains of rhubarb and calomel, combined with an aromatic, which, in the course of the afternoon and following morning, carried off by stool considerable quantities of fluid and solid matter of nearly a jet black colour, and without smell. At length the evacuations assumed a clayey colour; and when I left him, were gradually returning to their natural state. The feverish symptoms had vanished on the free operation of the purgative; and next day he merely complained of weakness and want of appetite. From hence it would appear, that if due attention had been paid to preserve an open state of the bowels, no injury would have ensued from the quantity of the medicine taken, inasmuch as simple constipation is perfectly adequate to account for the slight subsequent derangement of the system which took place. When the cause of this distressing and hitherto intractable malady is better understood, and if, after further trials, the carbonate, subcarbonate, or oxide of iron (or whatever it may be styled), be really found to possess specific powers for its removal, it will then be time enough to offer conjectures as to the *mode* in which it operates. I shall only here observe, that the cure, in this instance, does not seem to have been brought about by the operation of its well known tonic qualities; for, if it did not actually destroy the appetite, a state of anorexia, and consequent general debility, at least prevailed throughout the whole course of its administration.

Mr A. died on the 30th of May, after an illness of twenty-six hours, and was said to have been insensible from the first attack.

30th June, 1821.

XVII.

CONTRIBUTIONS TO MORBID ANATOMY. No. III.

1. *Case of Rupture of the Larynx Trachea by External Violence, inducing Emphysema.* By Lucius O'Brien, M.D. (*With a Plate.*)

H. G. was brought into the Royal Infirmary of Edinburgh on the 23d July 1818, about half past 5 o'clock P. M., in the following state.

Face very tumid, especially on the right side; right eyelids so distended as nearly to close the eye; lips livid; breathing very laborious and stridulous; most easily performed in the sitting posture. She complained of thirst, and repeatedly asked for water, which, however, she was unable to swallow.

On being examined more particularly, the skin in general was cold; and on the thorax, neck, face, and superior extremities, distinctly emphysematous; and the pulse was scarcely perceptible. When questioned as to where she was hurt, she pointed to her throat, and said she had been kicked under the jaw and in the belly, and much bruised on the right side. When pressure was made on the right side of the thorax, about the middle of the ribs, she complained of pain, but no

Dr O'BRIEN'S CASE

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Fig. 1.

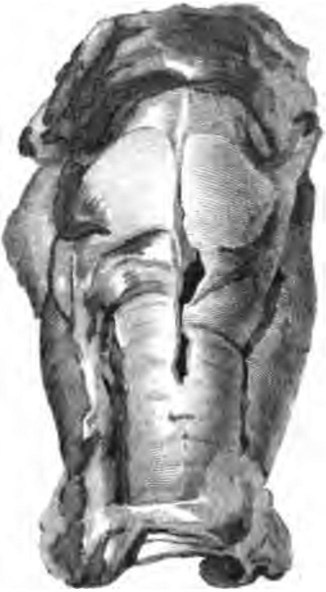
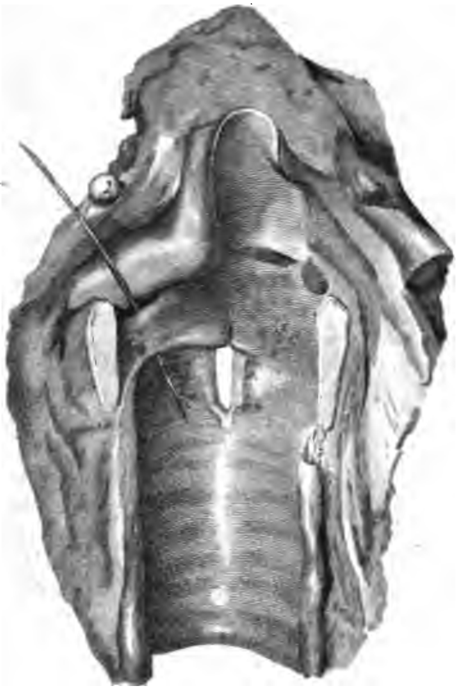


Fig. 2.



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Engd by W.H.Lizars

crepitus could be distinguished. Pressure on the abdomen caused considerable pain; but no mark of injury could be perceived. She could hardly bear any examination of her neck, which was very tumid; and on the lower anterior part of it was a bluish mark. She had been bled before admission, and some leech-bites were observed on her breast.

Some scarifications were made about the lower part of the neck, and a small quantity of warm wine and water were given. After some time, the emphysema seemed somewhat less, and the pulse became more distinct, but was intermitting. About half past nine a full opiate was administered, and some toddy directed to be given at intervals during the night.

24th July, half past eight *a.m.*—Seems much in the same state as last night, and is reported to have had vomiting. After half past eleven o'clock became suddenly more faint, and her breathing more difficult; and very shortly after expired.

Dissection.—25th July, in presence of Dr Duncan, junior, and Messrs Law and Gillespie, surgeons to the Infirmary.

There was distinct ecchymosis of the soft parts on the lower anterior part of the neck, extending down to the muscles over the trachea; and the cellular substance was every where distended with air. On the soft parts being removed, a rupture was found through the whole depth of the thyroid and cricoid cartilages, on the left of their mesial plane, and then through the right side of the first ring of the trachea.

A transverse incision was made through the soft parts above the os hyoides; and the pharynx, œsophagus, larynx and trachea raised up from the spine. On slitting up the œsophagus and pharynx posteriorly, an effusion of blood was found under the mucous membrane of the left side of the pharynx, of an irregular figure, and occupying, perhaps, the extent of a square inch. It extended to the inside of the epiglottis, between it and the arytenoid cartilage for a quarter of an inch. Here the membrane was much tumified, and projected into the passage, so that it must have obstructed respiration very considerably. Another effusion, but much smaller, was found on the middle of the right posterior edge of the thyroid cartilage. The larynx and trachea were then opened posteriorly; and the membrane lining them, and the pharynx, were more than usually vascular, and of a light pink colour. The ruptured edges of the cartilages were rather tumified, and slightly inverted. Most of the cellular substance surrounding the larynx, pharynx, and trachea, was emphysematous.

The right lung was found collapsed, but no laceration of its surface, or fracture of the ribs, could be detected; and the lung was capable of distension by being inflated. Through its substance were a number of small hard tubercles; but it appeared healthy in other respects, there being no adhesion between it and the pleura costalis, nor any fluid in that cavity of the thorax.

The left lung was extensively diseased, its substance being full of tubercles and vomicæ, and it adhered by almost all its thoracic surface to the pleura costalis.

The anterior mediastinum was completely emphysematous. On opening the heart, the blood was found not coagulated, and quite frothy from the admixture of air; and that in the aorta and vena cava abdominalis was in the same state.

In the head, the only morbid appearance was some turgescence of the vessels in the ventricles; and the arteries were distended with very dark fluid blood, like that in the veins.

Note by Dr Duncan, Junior.—The injury was inflicted by a kick; and the brutal husband was afterwards tried for murder, but escaped, on account of a defect in the circumstantial evidence. I do not know of any other instance of rupture of the larynx by external violence. The production of subcutaneous emphysema, in consequence of such an injury, is easily explained; but not so the *pneumothorax* of the right side, which I consider to have been the immediate cause of death. The left lung, it will be observed, was very much diseased, and could contribute very little to the function of respiration; and therefore, when the right lung became collapsed and compressed, by the entrance of air between the costal and pulmonary pleuræ, suffocation was the necessary consequence. The collapsed appearance of the right lung, on laying open the chest, was remarkable; and it was ascertained that this state existed before the cavity was opened, as the air was felt by Dr O'Brien to rush *out*, when he made the first incision to divide the sternal cartilages on that side. The first idea that suggested itself was, that the lung itself had been ruptured by the external violence; but this was disproved by the facility with which it was inflated; and the only rational supposition is, that air blown into the cellular membrane of the neck from the ruptured trachea, was at last forced into the pleural cavity, through some fissure in the pleura costalis, where she complained of pain on pressure, although none was discovered. At the time when this case occurred, Laennec's valuable work, *De l'Auscultation Mediate*, lately translated by Dr Forbes, was not published. In it the symptoms and diagnosis of pneumothorax, as arising from disease, are particularly described.

In the plates, the upper figure represents the anterior view of the trachea, after the soft parts were removed; and the lower figure the view of the inside of the trachea, slit up from behind.

2. *Case of Simple Hydrops Pericardii.* By LUCIUS O'BRIEN, M. D.

P. M'L., æt. 26, barber, with *curved spine*, admitted into the Royal Infirmary of Edinburgh 21st February 1820. Complains of very severe dyspnœa, worst at night, at which time he has troublesome cough, with copious, and rather difficult expectoration. Abdomen is swelled, and gives a distinct sense of fluctuation; distressing sensation of tightness across the epigastrium; slight œdema of hands and face; œdematous swelling of legs towards night; sensation of great debility towards morning; pulse 130, very small; skin in general cold; little thirst or appetite; bowels confined; tongue white and loaded; urine not above two gills in 24 hours.

These complaints began about the end of December, with cough, and have gradually increased.

He has observed the diminution of his urine for eight or ten days only. Has used a few gentle purgatives. The above symptoms gradually increased. His face and neck became very livid; and he died on the 26th February, at 9 *a. m.*

During the last three days, he lay in a remarkably horizontal position, without any increased dyspnœa.

He was treated with tinct. digit.—pilul. hydr. and occasional purgatives.

The urine all along gave a very copious deposition of rosacic acid.

Sectio cadaveris, 29 hours after death.—The pericardium contained upwards of ℥xij. of a serous fluid; and the cavities of the pluieræ ℥v. The great vessels of the lungs were turgid, with dark, loosely coagulated blood. No organic disease of the viscera could be detected.

The spine was curved at each side in a remarkable manner.

3. *Case of Abscess from Caries of the Bodies of the Cervical Vertebræ.* By F. LE FEVRE, Esq., Royal Infirmary.

—— M'D., æt. four years, was observed, about the beginning of April, to have a stiffness in his neck, with a slight cough, resembling common cold. I saw him in May; and then his cough had acquired a degree of roupiness similar to what is observed in croup, and which continued of a similar nature till he died. At first it was more frequent than lately, though it still retained its peculiar character. His breathing at first was not affected; but, for the last two months, he could not breathe without much difficulty when asleep, and had then a great degree of stertor; though, when awoke, he seemed quite free from any uneasiness, and breathed with perfect freedom.

On examining his throat externally, nothing was observed, unless, perhaps, the thyroid cartilage protruded a little. On looking into his mouth, there was no unusual appearance. His appetite continued good, though he had sometimes spontaneous vomiting. He swallowed perfectly well, and without difficulty, till within two days of his death, when he seemed to experience some inconvenience; pulse 120, and occasional perspirations during the greater part of the disease. He enjoyed all his locomotive powers till within 24 hours of his death, when he became very dull and stupid, and the stertor in his breathing was much increased; his face became turgid, his pulse intermittent, and there seemed to be considerable compression on the brain. After having been in this state for about 24 hours, he awoke with a start, and instantly died.

Sectio cadaveris.—Trachea and cartilages quite natural; but a tumour was found lying before the bodies of the cervical vertebræ, and extending from the top of the second to about the sixth. It was of a pyramidal shape, and very hard and distended. Upon opening it, it was found to contain about three ounces of yellow pus. The sac was very strong and thick. At the back part of the tumour an opening, admitting about the point of the finger, was found between the third and fourth vertebræ, which made a communication between the sac of the tumour and spinal vertebræ. The bodies of the vertebræ were in part worn away by caries.

Edinburgh, July 1819.

PART II.

CRITICAL ANALYSIS.

I.

1. *Essai sur les Moyens de perfectionner et d'etendre l'Art de l'Anatomiste, presenté et soutenu à l'Ecole de Médecine de Paris, le Lundi,* 11 *Fructidor an XI.* (1803). Par CONSTANT DUMERIL. Paris, chez Baudouin, Imprimeur de l'Institut National, rue de Grenelle-Saint-Germain, No. 1131. Gabon et C.gnie, Libraires, Rue et Place de l'Ecole de Médecine. Fructidor, an XI. (1803.)
2. *An Account of a New Method of making Dried Anatomical Preparations.* By JOSEPH SWAN, Member of the Royal College of Surgeons, and Surgeon to the Lincoln County Hospital. Second Edition, considerably enlarged. Lincoln, printed by and for Drury & Son, and for Taylor & Hessey, Fleet-Street, and J. Drury, 36, Lombard Street, London. 1820.
3. *De La Desiccation, et des autres Moyens de Conservation des Pièces Anatomiques.* Par GILBERT BRESCHET, Docteur en Médecine de la Faculté de Paris, Prosecteur à la même Faculté, premier Aide de Clinique enterne à l'Hôtel-Dieu, &c. A Paris. Chez Mequignon Marris Libraire pour la partie de Médecine, rue de l'Ecole de Médecine, N° 3 près celle de la Harpe. 1819.

ANATOMY, when viewed as an object of liberal and philosophical research, resolves itself naturally into two great divisions, anatomical science and anatomical art. To the first of these we refer all the facts which have been collected concerning the structure of animal bodies;—all the points which have been ascertained by the industry of dissectors and inquirers of different kinds;—the entire sum, in short, of that knowledge of which we are at present in possession, regarding the structure and organization of the animal body in general, and the human subject in particular. Anatomical art, on the other hand, comprehends all those means, devices and contrivances, manual, instrumental, or potential, by the aid of which we are enabled to unfold and demonstrate the animal organization. As the science of anatomy, like every other, exists only in relation to the intellectual faculties by which it is cultivated, communicated and preserved, so, it may be considered as that assemblage of information which human labour and ingenuity have arranged and recorded for the purpose of mutual communication and general instruction. The art of the anatomist presents a character somewhat different; it is subservient to the science, and furnishes the materials from which that is constructed; and while it implies the exercise of the same intellectual powers which are employed in the cultivation of the science, it depends for its success, in an eminent degree, on the address, mechanical dexterity and resources of the student, and, in no ordinary measure, on the successful application of such powers and agents as the knowledge of collateral sciences furnishes. Many circumstances concur to render resources of this kind indispensably necessary to the successful and advantageous cultivation of anatomy. In certain parts, the organization may be so minute and delicate, that the ordinary means of exposition contribute in no degree to the elucidation of the subject; and contrivances of a more powerful nature must be employed to obtain the information which we require. The moral necessity even of pursuing our investigations after death, is a fertile source of inconvenience and error occasionally; for, after the extinction of life, the constituent elements quickly manifest a tendency to enter into new combinations; every hour that we prolong our researches tends to render them less accurate, and augment the difficulty of continuing them. The obstacles and inconveniences arising from causes of this description, especially in warm climates, and in the summer season of the more northern countries of Europe, have gradually suggested to practical anatomists those artifices and contrivances which collectively may be denominated the Anatomical Arts.

Of the three *brochures* which are enumerated at the beginning of this article, the first is the production of an individual whose name and whose history are sufficient to give rise to the highest expectations. The assistant and colleague of Cuvier, and the *redacteur* of his incomparable work on Comparative Anatomy, must, on the subject of arts which he had long practised in every form, be listened to with peculiar attention. This essay, therefore, though published many years ago, is still spoken of among the French anatomists as the most valuable and elegant treatise on the subject,—as too short and general indeed, but as containing an excellent and well-ordered view of the different objects of the practical anatomist, and the means which he employs to attain his purpose. The authors of the two last have confined themselves chiefly to one division of the subject, that of conservation; and we shall therefore say little or nothing of their works till we come to the proper place.

The art of the anatomist, says M. Dumeril, consists of five principal processes, viz. dissection, injection, maceration, conservation, and, finally, arrangement of the preparations for the purpose of study or communicating knowledge. Without stating any remarkable objection to this division, we would observe, that the duties of the practical anatomist may in general be referred to the following heads; 1*st*, *exposition*, under which we comprehend dissection, sawing, tearing where requisite, and division by nippers or pliers, files, or any other species of cutting instrument; 2*d*, *preparation*, which may, without much violence, be made to comprise injection of every kind, insufflation, distension of different kinds, corrosion, maceration, &c.; 3*d*, *conservation*, or the employment of those measures, chemical, mechanical, or of a mixed nature, by which the portions or subjects so treated may be prevented from undergoing decomposition, or suffering from the operation of other causes, which may alter their appearance or properties. As this arrangement of the anatomical arts, which, so far as we know, is not found elsewhere, appears to us to be the best suited for bringing before our readers the useful and appropriate parts of the subject, it is unnecessary to say, that we shall adhere as closely as possible to the order thus sketched.

I. We have already expressed our general view of what we mean by the art of exposition in anatomical studies. It may be observed, that it is so generally known, yet so little subject to general rules, that it must be almost impossible to attempt to enter on it in such works as those which we are now proceeding to examine. It has accordingly required express treatises, in which the course of proceeding, and the individual processes, are detailed, as the anatomist proceeds in his researches. The more ancient anatomists satisfied themselves with the simplest and most easy method of accomplishing their object; and we do not recognise much systematic instruction for exposing and demonstrating the organs and textures of the human body before the days of Eustachius and Varolius. Both of these anatomists give directions for the exposition of the parts which they describe; but their precepts are so simple and obvious, that they must have occurred to the most ignorant beginner in the art. We find Riolanus, in like manner, entering somewhat minutely into the details of the methods which he found most expedient and successful in developing the structure of the human body. All these directions and instructions were first embodied and arranged by Michael Lyserus—himself an anatomist of very considerable eminence, who flourished about the middle of the 17th century. This author, who studied the art at Copenhagen, under the auspices of Simon Pauli and Thomas Bartholinus, the latter of whom he is said to have assisted in the discovery of the chyliferous absorbents, first published the result of his labours in 1653, for the benefit of the rising anatomical race, under the quaint but expressive title of the *Anatomical Knife*. We must not try the patience of our readers by any account of this work, or in tracing the history and gradual improvements of this department of anatomical art, from the days of Lyserus to that of the London Dissector, M. Marjolin and Mr Shaw. We believe, that without detracting from the merit of Lyserus, which is certainly very considerable, without referring even to the time in which he lived, we have now more perfect and accomplished guides to direct the labours of the practical anatomist. As we lately had occasion to notice a very excellent and finished work of this nature, we shall not now return to the subject; and while we refer to it for ample information on the details, our present observations shall be of a very general nature.

The art of *exposition* must be modified according to the anatomical nature of the part to be demonstrated, according to the kind of view which it is wished to give, and to the nature of the facts, anatomical or physiological, which it is wished to illustrate. To exhibit a satisfactory view of parts which consist of several complicated cavities, two or three sections in various ways are requisite. The nasal cavities, for instance, are most conveniently shown by three sections at least; 1*st*, a vertical antero-posterior one through the mesial plane, or as near it as is practicable; 2*d*, one parallel to this, but from three to six lines on the one side; and, 3*d*, a vertical one at right angles to the last, and the plane of which lies across the cranium, so as to separate it into anterior and posterior divisions. Again, if it be wished to show the relative position of the tongue, larynx, trachea, uvula, and pharynx, this will be very well done by a vertical section which is antero-posterior, and divides these parts in two equal halves by the mesial plane; but, if the object of the demonstrator be to exhibit the glottis, rima, and the mode in which the arytenoid cartilages regulate the quantity of air which enters the trachea, and, by shutting and opening the glottis, enable the individual to retain his breath, as happens in great efforts of personal strength, then this section is almost useless, and must be relinquished for other two, the direction of which will show this more satisfactorily. The demonstrator will, in such a case, make two sections,—one transversely across at the inferior margin of the cricoid cartilage, so as to expose the cylindrical cavity of this part of the larynx, and the longitudinal fissure of the glottis immediately above. The other should be vertical and transverse, through the entire length of the larynx, which is thus divided, not into a right and left half, but into anterior and posterior portions; or the dissector may remove the posterior portion of the cricoid cartilage, but without injuring the articulation of the arytenoid cartilages. By such sections he will be enabled to show the extent of the rima glottidis, and the mode in which this curious mechanism is rendered subservient to the three functions of respiration, speech, and deglutition.

Every practical anatomist knows how much depends on the correct and distinct exposition of the parts in the neck, in the perinæum, and in the vicinity of the neck of the bladder, and those concerned in the pathology and treatment of hernia. These, we have reason to believe, are now well known by the labours of Scarpa, Cooper, Colles, and Burns, and, more recently, by the improvements of Messrs Bell and Shaw. Of equal importance, certainly, as a piece of curious and interesting anatomy, though less valuable in the eyes of the practical surgeon, is the exposition of the parts constituting the organ of hearing. One of the most valuable parts of Mr Swan's work is his 11th Chapter, in which he has examined this subject with considerable detail. As the subject is curious, and not easily comprehended, we shall make such use of Mr S.'s work as we think may be beneficial to our readers.

> "The bone which forms the inferior part of each meatus auditorius externus must be laid bare, and carefully removed with a chissel and mallet, until the membrana tympani is fully exposed. In one of these portions, the extremity of the Eustachian tube must be detached from the pharynx, and turned a little aside; the anterior part of the skull must then be removed by sawing through the glenoid cavity, so as to leave the membrana tympani and Eustachian tube perfect. In this portion the cavity of the tympanum may be laid open, by cutting away with a strong knife or chissel a thin piece of bone which is at the side, and opposite the middle of the petrous portion of the temporal bone, and between its sharp edge and the squamous portion, which will expose the malleus and incus. Then the Eustachian tube must be cut open quite into the tympanum. In this dissection, the tympanum will be seen communicating backwards with the mastoid cells, and at the same time the situations of the four small bones must be observed. That the malleus is fixed by its handle to the membrana tympani, and that its processus gracilis is articulated in a groove at the anterior part of the tympanum. That the body of the incus is articulated with the head of the malleus;

that its short crus is resting in a groove in the bone near the entrance of the mastoid cells; and after a little of the petrous portion, opposite to the incus, has been cut away, that its long crus is joined to the os orbiculare, which is a very small round bone. That the stapes goes across the tympanum, its head being articulated with the os orbiculare, and its base with the fenestra ovalis. To have these bones separate, and at the same time perfect, it is necessary to macerate a temporal bone until they are quite loose. In a similar portion of the skull, the muscles of the tympanum must also be dissected." pp. 89–91.

"For making a preparation of the labyrinth, it is necessary to begin to file about the middle of the petrous portion of the temporal bone, and between its ridge and the cavity of the tympanum and the superior semicircular canal will be opened, and by tracing it towards the tympanum, will be found terminating in the vestibule, nearly opposite to the head of the malleus; the other extremity will be found terminating in common with the upper extremity of the posterior semicircular canal, which termination is about three-twelfths of an inch from the middle of the posterior part of the meatus auditorius internus, and in the fœtus two-twelfths.

"In tracing the posterior canal backwards, its inferior extremity will be found at about three and a half twelfths of an inch from the jugular fossa, and in the fœtus rather more than two-twelfths of an inch from the foramen stylo-mastoideum.

"These two canals being laid open, the petrous portion behind them must be cut away until the exterior semicircular canal is opened. It is placed horizontally about four-twelfths of an inch deeper in the bone than the top of the superior canal, and is nearly even with the superior part of the incus. In the fœtus it is three-twelfths of an inch deeper in the bone than the top of the superior canal. The labyrinth is most easily dissected in the fœtus, for it is as perfect as in the adult, whilst the surrounding bone is so soft as to be very easily cut with a knife; but the adult ear makes the most beautiful preparation. In the fœtus, the course of a great part of the superior and posterior semicircular canals may be seen without any dissection.

"The cochlea is now to be dissected. It lies with its base to the meatus auditorius internus, and its apex to the tympanum. It is three-twelfths of an inch from the entrance of the outer extremity of the superior semicircular canal into the vestibule; in the fœtus it is two-twelfths of an inch. It must be opened by carefully cutting away the bone with a knife, the point being inclined a little downwards towards the tympanum. When the cochlea is laid open, something like a pillar in the middle, going from the base to the apex, may be observed; the lower two-thirds of which have been called modiolus, and the upper third infundibulum. The lamina spiralis, which is a thin plate of bone with a membranous edge, winds round the pillar; it begins at the fenestra rotunda, and divides the cochlea into two canals called scalæ; these two canals communicate at the apex, where the lamina spiralis terminates in a sharp point."—*Swan*, pp. 95—99.

In regard to the exposition both of the tympanal cavity and of the labyrinth, we may add, that we have found it by experience exceedingly useful to make such sections of the temporal bone, in the dried state, as will expose the two fenestræ, the vestibule, the cochlea, and the semicircular canals;—and, after these preliminary operations, to proceed to expose these cavities in a recent bone, in such a manner as to communicate a clear and distinct idea of the soft parts which they are destined to contain. This twofold method of exposition will be found infinitely more useful to the beginner, than if he were to be taught the structure of the organ from the recent ear alone.

In the development of structure, or the minute disposition of the component parts of various tissues, a more patient and careful species of exposition is requisite. The knife, the file, and the saw, are of little use, unless their employment be guided by the light which is thrown on the nature of the textures by the operation of chemical agents. Both of our authors seem to make exceedingly light of this; and while M. Dumeril has spoken but little of it, Mr Swan has passed it over entirely. As an instance of what the former has said, we present his method of exposing the vessels of the osseous system.

"Thus, for example, to render more visible the principal artery, which is distributed to the substance of a cylindrical bone, let the artery be distended with some colouring matter, the bone be immersed in diluted nitric acid, and subsequently varnished, the animal matter which is left will become so transparent as to show distinctly the ramification of the vessels which go to it. A preparation of this kind may he kept either in the open air, after being immersed in an alcoholic solution of an arsenical soap, which dries quickly without blanching, and is easily varnished; or, if the preparation be small, it may be suspended in any volatile oil. In the last case, the injection must be made with gelatinous, not oily substances."

The anatomist who undervalues, or is unaware of the advantages which he may derive from chemical means, and trusts exclusively to the knife in developing organization, deprives himself of the most fertile source of knowledge within his reach. On a former occasion, we attempted to show how much light had been thrown on the organization of the nervous system, by the ingenious application of chemical agents in the hands of Reil and Bichat;[*] and it would not be difficult to prove, from the researches of those eminent anatomists, the necessity of indurating the cerebral matter by immersion in alcohol, acids, or solution of corrosive sublimate, in investigating the organization of the brain. Another very effectual agent for rendering distinct, and unfolding these minute tissues, which the scalpel either accomplishes imperfectly or in no degree at all, is long-continued boiling. The effect of this on the disposition of the fibres of the organic muscles, is remarkably well illustrated by the observations of Dr Duncan junior on the structure of the heart. Every one who is familiar with anatomical researches, and the writings of anatomists, knows the scanty information which can be obtained from the mere unassisted dissection, and by cutting, as is usually done, to show the muscular structure of the heart, its parietes into small pieces, in various directions. The gradual application of heat, by long boiling, effects on the tissues of the heart chemical changes, which render the study of its organization a matter of comparative facility. The connecting cellular tissue is softened, partially dissolved, and allows the parts which it united to be separated, while the fibrin of the muscular fibres is rendered firmer, denser, and more conspicuous. By this means, the auricles and great vessels are easily removed from their respective ventricles, the organization of the ventricles is rendered obvious, the direction of the constituent fibres is shown, and, by cautious management, the whole of the ventricles may be unrolled and as it were unfolded. We may perceive the manner in which the fleshy or muscular pillars of the heart are formed from the substance of these fibres, and in what manner the cavity of the ventricle is diminished at the instant of contraction. In short, more has been, or may be done, by this means, to develop the minute anatomy of the heart and other complicated muscular organs, than can be accomplished by the knife of the most dexterous anatomist.

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[*] Medical and Surgical Journal, Vol. XVII. p. 424.

II. There are many situations in which mere dissection, or the successive and methodic removal of different parts, does not enable the anatomist to show minutely all the necessary points relating to the figure, size, distribution, and other qualities of several organs. Previous, therefore, to the use of the knife, the scissors, the saw, file, or gouge, he must have recourse to certain preliminary operations, the object of which is, in general, to render parts which would otherwise be indistinct or even invisible, obvious, and of easy examination. He must inject bloodvessels and lymphatics; he must inflate the membranous hollow organs; other parts, in which this is inconvenient, he must distend by baked hair, flax, sponge, or any other moderately elastic substance; and not unfrequently he finds it indispensable to solicit the aid of certain chemical powers to remove or destroy what is superfluous, and unfold whatever is indistinct. We look upon these various processes as all analogous, or of the same nature,—as all having the same object in view, although attaining it in a different way, according to the peculiarities of the case which requires their employment. It is with some distrust that we venture to criticise even the order in which M. Dumeril and Mr Swan have chosen to deliver their instructions; but we think that both of these authors have erred exceedingly in this respect; and, from a want of attention to the purpose which the practical anatomist ought to retain steadily before him in preparing for demonstration, have destroyed, in a considerable degree, the unity of their subject, and thrown into some confusion matters which, in our mind, admitted of a very clear and symmetrical arrangement. That this observation is strictly true, we think will readily be discovered, on looking into the arrangement of Mr Swan, who has treated the several divisions of his subject in a manner not favourable to the communication of knowledge, however it may suit the individual steps and progress of his description. It must not, therefore, excite the astonishment of our readers, that we do not follow the order of either of our authors in considering the several processes of injection, insufflation, distension, corrosion, maceration in various liquors, and even coagulation or induration as analogous, and to be classed under the general head of what we have named *Preparation.*

As the greater number of the processes employed with this intention, either depend on injection in some degree for their success, or imply and require that as a preliminary measure, it is not wonderful that they did not occur to anatomical inquirers till the art of injecting was brought to considerable perfection. When we take a cursory glance of the origin and progress of this art, however simple and obvious it may now be considered, it appears to have demanded considerable reflection and ingenuity before it could be rendered of much use to the anatomist; and it was only after many unsuccessful trials had been made, that it began to assume, in the hands of De Graaf and Ruysch, that unexpected perfection which contributed so largely to the celebrity of these names. Most of our readers may perhaps deem it of little moment to look back at the origins of an art which is now so simple, and we are not certain that we shall succeed in inducing them to change this opinion; but an acquaintance with the early history of an art is sometimes useful in improving it, even in its more perfect stage; and the knowledge of the difficulties with which its progress was embarrassed, makes us appreciate the advantages which it has furnished. We are now aware that the great purpose of injection is to render more distinct and obvious, the course, size, and termination of those ramifying tubes which constitute so great a proportion of the tissues and organs of the animal body. Wherever arteries, veins, or lymphatics, are to be shown, the distension of them by various substances is always the most certain method of doing it, and enables the dissector to trace their minutest divisions in situations where, without such aid, their existence could not have been credited. Whether the earlier practical anatomists were distinctly aware of this, we have not now the means of determining; but we may almost conclude, that they did not perceive rightly by what means this object was to be attained. At first they seem to have employed merely watery fluids, and afterwards fluids of various consistence, in which colouring substances were suspended; but their ignorance of substances which could be injected in a fluid state, and should subsequently become solid, proved a great obstacle to the success of their labours. Another cause which contributed, in a remarkable degree, to retard their progress, and prevent their success, is to be found in the imperfection of their apparatus. The want of good forcing syringes, which seem to have been first employed by De Graaf in 1668, for the purpose of injecting, must have rendered most of the attempts which they made very ineffectual, and even abortive.

That the art of distending the vessels of the animal body by melted fluids, which, on hardening, should mould themselves exactly in the form and distribution of these tubes, is but a modern contrivance, we have sufficient proof in the wonder and admiration with which the few rude and awkward attempts of Swammerdam were beheld. Previous to the time of this indefatigable inquirer into the mysteries of nature, no attempts of the kind seem to have been even imagined; and the imperfect trials on which anatomists had, as it were, stumbled, seem to have been instituted rather for the purpose of a temporary demonstration of the manner in which different divisions of the same order of vessels communicated, than with the hope of exhibiting, in a palpable and distinct form, the general divisions of the vascular system.

Bartholomew Eustachius, whose appearance at the beginning of the 16th century constitutes an important era in the history of the science, is the first anatomist of whose injections we have undoubted evidence. After pursuing his studies with great assiduity and success at Rome, where he showed a decided partiality for anatomy, he was nominated professor of this science to the Roman College,—an office which he filled with such talent and honour, as to excite the jealousy of the neighbouring Universities. In his researches into the structure of the human body, he was the most indefatigable inquirer of the day, and, in many departments of human anatomy at least, may be said to have created the science. Previous to his time, almost all the anatomists, except James Berenger de Carpi, were in the habit of dissecting principally the bodies of the lower animals, and appealing to them exclusively for the establishment of anatomical facts; and even Vesalius was not exempt from this error. Eustachius, however, though he did not reject the information obtained from this source, yet devoted himself most assiduously to the examination of the human subject, and thus corrected many errors into which the earlier anatomists had been led. Among other subjects pertaining to the organization of the human body, he bestowed incredible attention on the structure of the kidney, and the urinary organs in general. He seems to have repeatedly injected fluids of various kinds into the renal arteries; to have thus become intimately acquainted with their course and termination; and indeed his description of the organization of these glands, is one of the most accurate pieces of anatomical history which we possess. We have not room in this place to examine his various discoveries in the vascular system, to most of which his practice of injecting water, &c. seems to have greatly contributed. To any one who examines the engraved representations which he has left of the aorta, and other great vessels, of the vena azygos, and some of the other divisions of the vascular system, it must be at once gratifying and wonderful to think that it was possible for him, in so short a space, to collect, from personal and unassisted observation, so much correct anatomy in subjects where, of all others, it was most easy to commit errors. He was indeed the first author who gave correct ideas of the relative position of the great vessels,—the first who, after Amatus Lusitanus, demonstrated and described the vena azygos,—and the first who detected and described the thoracic duct; and his priority in these important points was mainly to be ascribed to his habit of tracing and observing vascular organs.

The example of Eustachius appears to have been either little known, or little followed by his contemporaries and immediate successors; for we find no mention made of injecting the blood-vessels till more than half a century after, in the time of John Riolanus. This author, who was born at Paris in 1577, and died in 1657, was royal professor of anatomy and botany, and cultivated the anatomical arts and sciences with much assiduity and success. His name is connected with circumstances of peculiar interest in the history of English physiology, in consequence of his controversy with Harvey, his visit to England, and his interview with that immortal physician, who repeated his experiments before Riolanus, without convincing him of the conclusions derived from them. Riolanus not only practised the method employed by Eustachius, of injecting coloured liquors into the blood-vessels, but recommended a contrivance peculiar to himself, that of inflating them with air—a process to which he applied the fanciful term of *pneumatic anatomy*. By its means he showed that the umbilical vein of the full-grown fœtus communicates with every part of the body; that the portal vein of the adult communicates with the vena cava; the stomach with the spleen, by means of the vasa brevia; and the radiculæ of the emulgent vein with the ureter. He recommends inflation of the vessels, most particularly in living animals, in which he asserts it might be employed to demonstrate known, and discover new communications of the vascular system.

Our readers will perceive, from these brief notices, that the art of injecting was still in its rudest and most imperfect state, and by no means calculated to afford much information on the nature of the animal organization. This point is still more conspicuously exemplified in the history and researches of our countryman Francis Glisson, who was professor of anatomy at Cambridge about the middle of the 17th century. This author published at London, in 1654, his work on the anatomy of the liver; and perhaps not the least valuable part of it, is the description which he has given of the method and apparatus which he employed to inject the hepatic vessels, and the ramifications of the portal vein. The injection which he employed and recommended for the same purpose, was water, either pure or mingled with milk, or tinged with saffron, or any similar colouring matter. His apparatus, of which he has given an engraved representation in the work, was of the rudest description. It consisted of a large bladder furnished with a tube, the greater orifice of which might be secured by a plug, in such a manner that it could be readily withdrawn by means of a cord attached to it, while the smaller orifice was to be introduced into the vessel to be injected.

Nearly contemporary with Glisson, the history of English anatomy and pathology has to boast of Thomas Willis, a physician of the first eminence in London. Precisely ten years after the appearance of the anatomy of the liver, Dr Willis published his anatomy of the brain; which was distinguished at once for containing the most elaborate and perfect description of the nervous system, and exhibiting original and novel views of the nature of disease, which have exercised a remarkable influence on the subsequent progress of practical medicine. Willis injected coloured fluids into the carotid artery of one side, to discover and establish their communication by the anastomosing arrangement which has since been known by his name. If the ideas of Willis had not been bewildered by the mystical pathology of the day, his anatomical propensities, and his talent for observation and accurate description, would have placed him first in the lists of medical science.

Almost immediately after this, two very marked improvements, both in the apparatus, and likewise in the materials employed, were introduced into the art by three contemporary anatomists, Swammerdam and De Graaf in Holland, and Bellini in Italy. The two former were known to each other, and originally friends; though evidences still remain of the jealousy and hatred with which they looked on the labours of each other.

John Swammerdam was the son of an apothecary of the same name at Amsterdam. In 1661, when only 24 years of age, he was known at Leyden, where he had studied, as an anatomist of great knowledge and talent; and he is recorded to have injected in 1666, in his native city, under the auspices of Van Horne and Slades; three or four years after at Paris, before Thevenot and Steno; and, in 1671, in the presence of Fes, Wedsen, and, according to some authorities, Ruysch. The injections of Swammerdam, which were made with melted tallow or wax, which was tinged of various colours, are mentioned as of a nature entirely new and unknown, and evidently excited great wonder and attention. It does not appear to be established with certainty, whether this anatomist was entitled to the entire merit of this improvement, which, however simple it may seem, was the means of bringing the art of injection in general, and the whole science of vascular anatomy, to the perfection which it has since attained. He is reported to have been led to it by injecting a quantity of melted wax into the uterine vessels; but this contrivance is by others attributed to Laurentius Bellini, Professor of Anatomy in the University of Pisa, who appears to have prepared and studied the distribution of the renal vessels in this manner; though it seems by no means certain that Swammerdam had any information of the devices of Bellini. It is however alleged, that he derived the hint of tinging the matter of his injections from John Huddenius.

The contemporary of Swammerdam, Regnier de Graaf, was a native of Schoonhaven in the United Provinces. Though cut off at the early age of 32 years, he has left evidences of great talents for the successful cultivation of minute vascular anatomy. He was the first who employed the syringe for injecting, and has left behind him a small treatise on the use of this instrument in prosecuting anatomical inquiries. By its aid he demonstrated the distribution and termination of the carotid arteries—the circular motion of the blood from these to the jugular veins—from the pulmonary artery to the pulmonary veins, and left side of the heart—from the renal artery to the renal vein, and even the vena cava—the course of the thoracic duct—the communication between the vasa deferentia and the vesiculæ seminales—the distension of the cavernous bodies, and consequent erection of the penis by the injection of the hypogastric artery.

The injecting celebrity of Ruysch is known to all the world; and we cannot hope to add a single new fact to the wonders which are usually related concerning the labours of this celebrated anatomist. We do not, however, feel particularly anxious to repeat the often told stories of the miracles of his injections; nor do we think that a very just character of Ruysch has been transmitted to modern times. Two remarkable points in his history we are disposed to view in a light somewhat different from that in which they have been generally represented. We allude to his success in injecting, which has been generally supposed to be unequalled, and the charge which has been uniformly brought against him of invidiously and illiberally concealing the means by which he accomplished his purpose. We are perfectly willing to admit that Ruysch almost created the art of injecting; for the rude and awkward manner in which it was performed, even in the trials of Swammerdam and De Graaf, when he began his labours, bore no resemblance to the perfection which it had attained in his patient and dexterous management. This very circumstance, however, has greatly contributed to increase the admiration with which his labours were viewed, and to exaggerate the accounts which have been recorded of the feelings to which they gave rise. It was something so new, and unexpected, to behold the organs of the human body covered with minute arborescent vessels; there was a something which gave a sort of interest and beauty even to objects which all mankind had been accustomed to view with horror and disgust, and in which even the zeal of anatomists did not prevent them from participating, that it is by no means so wonderful as it has been represented that the preparations of

Ruysch were so much visited and admired. To any one who peruses the different *Thesauri* of this author, in which he describes the preparations which he had made, it will appear tolerably evident, that the means which Ruysch took to succeed in his injections consisted not so much in the peculiarity of the materials, though that must have been of some moment, as the manner in which he employed them, the extreme care which he took to prepare his subjects previous to injection, and, above all, using the utmost expedition compatible with the proper performance of the process. It has been commonly supposed that the injections of Ruysch were infinitely better executed than any other preparations have since been done; but we presume that this results from that admiration of antiquity which leads many to commend any thing, because it was done long ago, and not because it was done well. We think, at all events, that if the Ruyschian art has been lost, it has likewise been re-discovered; for it cannot be denied that modern museums present as perfect specimens of the art as any almost that the Dutch anatomist could boast.

With regard to the charge of illiberal secrecy on the methods which he employed, we doubt much whether he had a great deal to conceal; we suspect, if the whole were to be disclosed to the world, it would differ exceedingly little from what the best modern practical anatomists know intimately, and practise daily. This does not, indeed, place the character of Ruysch in a much more honourable light; but it may be remarked that, where there is little to reveal, the value of that little is often enhanced by concealment; and if the excellence of Ruysch's method consisted in an attention to many minute details and petty forms, the observance of which might appear inadequate to the purpose, he was perhaps not to be so much blamed for not exposing what was little likely to meet with credence at that early period of the art.

We have occupied so much space in these historical notices of the early progress of this art, that we must not enter on the history of the more modern practical anatomists, or the improvements which they introduced. It is sufficient to say, that, after the time of Ruysch, it was cultivated with much assiduity by Kerckringius, Lieberkuhn, Delassone, and the first Monro, the last of whom has left, in the Edinburgh Medical Essays, written proofs of the attention which he bestowed on its details. The art is now so generally known, and the discoveries which it has enabled the modern anatomists to make—the accurate descriptions, particularly, which it has enabled Haller, and more recently Scarpa, to give us of the minute divisions and anatomosing communications of the vascular system, are so familiar, that we could not hope to interest our readers by any further consideration of the subject. We shall merely make a few remarks on the manner in which M. Dumeril has examined the general business of injecting, and the improvements which he has submitted to the anatomical world. M. Dumeril thinks that the movable tubes which are inserted into the vessels are liable to three objections. 1*st*, As they are of metal, they are stiff, inflexible, and too rapid conductors of caloric. 2*d*, As it is requisite to secure the vessel on them by ligature, their great weight renders the laceration of the vessel a very ready and frequent occurrence. 3*d*, The fluid which is employed to distend the vessel, is liable, he says, to be cooled the moment it enters the tube; and the slightest drop of it becoming solid, renders the whole injection unsuccessful. M. D. does not approve of the plan which has been proposed of substituting leathern tubes, as they are not easily cleansed, and become as hard as the metal by the frequent application of hot fluids. He therefore suggests that we should employ tubes of elastic gum, or that material which is employed in the construction of the flexible catheter, and which is believed to be a drying oil, spread in repeated layers on slips of silk or woollen. To enable the injector to adapt them more easily to the syringe and the vessel, he applies metallic rings to each extremity of this flexible tube; and, for injecting the lymphatics, he unites it to the glass tube by common sealing-wax. By this arrangement, M. D. thinks we obtain a lighter, more flexible, and more easily cleansed tube,—one which is less likely to occasion crispation and consequent rupture of the vessel—and a tube which is not liable to rust, as happens to the steel one, which is requisite in the mercurial injection. We do not know how far we should be inclined to adopt these innovations of our author; for we never met, either in the injections which we have instituted, or in those which we have seen performed, any of the inconveniences which our author is anxious to remove. The tube must and ought, in every case, to be sufficiently warm not to solidify the injected fluid; but it is by no means requisite either that the fluid or the apparatus should be so hot as to injure the tissue of the vessel considerably. On the whole, we are disposed to think that, in good adroit management, the brazen tubes which are at present employed are the best that can be used.

A more serious objection is urged by M. Dumeril against the steel stop-cock employed in the mercurial injection. It is well known, that the facility with which mercury amalgamates with copper and zinc, renders the use of the steel stop-cock indispensable in injecting the lymphatics. The steel, however, may be rusted; and in France, it would appear, it is impossible to obtain stop-cocks of this metal sufficiently acuminated at the extremity which is to be inserted into the vessel. The employment, of late years, of a simple glass tube, the inserting extremity of which was drawn and bent at right angles to its body, has certainly diminished or removed some of these inconveniences, but has given rise to others not less serious perhaps. The least objectionable mercurial syringe, our author thinks, may be found in the following contrivance. Take a glass tube, from a foot to two feet and a half long, and from five to fifteen lines in diameter; let one extremity, cut with the file and rounded on the edge, be warmed and lined interiorly with sealing-wax, and immediately closed by a plug of cork or soft wood, previously adjusted, and with a hole in the centre. When the wax is cooled, the extremity of a small glass tube, uniform in diameter, and a line or a line and a half in circumference, which is to be previously warmed and covered with sealing-wax, is to be introduced into this aperture. On the projecting portion of this tube, which should be, at the greatest, an inch or an inch and a half long, after covering it with warm sealing-wax, the end of an elastic catheter, of a uniform diameter, and between two and three inches long, is to be slipped. In the hollow of the other extremity of this elastic gum tube, there is to be introduced and retained, by the same means, another small glass tube of a suitable diameter, and the free extremity of which is to be drawn to a capillary point at the flame of a taper. In such an apparatus as this, which may be suspended from the cieling, at a convenient height, in the ordinary way for performing mercurial injections, the great advantage is, that, while the large glass tube is filled with the mercury or the fluid, the elastic gum tube may be compressed, as occasion requires, between the thumb and finger of the one hand, and thus, by regulating the current of the substance to be injected, perform the important duty of a perfect stop-cock; while the other may be employed to insert the acuminated extremity of the small tube into the duct or lymphatic.

On the substances most suitable for injection, and on the modifications which are to be employed in particular circumstances, M. D. makes a number of judicious observations. Of the gelatinous, he thinks the most convenient is the ichthyocolla or isinglass. One ounce may be dissolved by the Marian bath, in a two-fold weight of water; and to this are to be added two ounces of alcohol previously heated. This solution may be tinged for the arteries with the carmine of Delafosse, or the carmined lakes of Hubert;—for the veins, with Prussian blue, dissolved in vinegar; or, if a white colour be wanted, with the white zinc of Antheaume. To render these gelatinous injections solid, a ready resource is found in the nutgall or tannin, in the solution of which the preparation, when injected, may be immersed for a day or two.

On the milky injections, which are to be subsequently coagulated with acids, alcohol, or tannin, and on the adipose injections, which are known to every one, we say nothing. Injections with volatile oils are very useful in embalming and preserving. A preliminary injection with oil of turpentine, which may be afterwards extracted by the syringe, is most useful in washing out the arteries before the ordinary substance is thrown into them. M. D. recommends the citron or lavender oil to be used for small preparations, on account of their conserving power and grateful odour.

The injection of elastic gum may be prepared in the usual way, by solution in the volatile oils, for ether is much too costly for this purpose; it is chiefly useful in preparations of parts which are to be corroded by acids which do not act on the caoutchouc, or where it is an object to retain flexibility, as in preparing the cotyledons of the lower animals, or the placenta of the human subject. On the solid and inflexible injections, as of plaster of Paris, or pure blanched wax, which are familiarly known, our author says nothing new.

M. Dumeril has taken a short but very methodical view of the various kinds of maceration and corrosion to which the anatomist has recourse in the prosecution of his researches; but we must hasten to the third division of the subject.

III. The conserving department of the anatomical arts is perhaps the most important and most generally useful; for the finest and most valuable preparation that can be made, and that which has demanded the most sedulous and unwearied exertion of the ingenuity of the preparer, may be completely lost for want of the proper means of preserving it in a state of integrity. Even in circumstances where it is impossible at the moment to prepare a portion of healthy or morbid anatomy, the contrivances by which it may be kept unchanged and unaffected by external agents and internal elements, till the leisure and convenience of the preparer, are truly indispensable; and climate, season, and local or particular circumstances, all tend to render the business of the conservator of the first consequence to the anatomist.

If we were inclined to show much learning and research on this subject, we might transport the imagination of our readers to a retrospect of 30 centuries ago, when the ingenuity of the most accomplished and most powerful nation of the earth was occupied in arresting the progress of decomposition in the bodies of sovereigns, or nobles, or priests, whose vanity, superstition, or longing after an immortality which was refused them, was but imperfectly gratified in this mode of preservation. We might seek to discover, in the rude and unmethodical exenteration practised among the Egyptians, the elements of an art which modern anatomy does not disdain to recognise as its most powerful auxiliary,—and to trace, in the history of mummification, the steps by which mankind were led to simulate life in the dead, and, by arresting the ravages of corruption, prolong, for many ages, the unchanged remains of that which had once breathed and spoken and ruled. This art, however, in whatever form it had existed and been practised, is now extinct; and we shall not occupy the time of our readers in attempting to restore from the imperfect traditional descriptions of ancient authors, what must for ever remain in its details a matter of great conjecture. It is known, in general, that innunction of aromatic gums and spicy substances, with powerful desiccation, were the principal means employed by the ancient Egyptians; but the changes necessarily induced by this method alter the organization of the body or substance so much as to render it almost useless as an anatomical art. Notwithstanding these objections, modern authors have not been wanting who have devoted much of their time and ingenuity to consider the best means of preserving the human body from the decay of putrefaction on these principles. Guillemeau and Horstius, who flourished within half a century of each other, deemed it not improper to instruct the world on this point; and the former, who had been honoured with the office of surgeon to three successive French monarchs, wrote a treatise on the embalming art, in which he gives an account of the examination of the bodies of Charles XI., Henry III., and Henry IV.; and describes the means which were taken to preserve them from decomposition. We shall not dwell on the conserving injections of melted amber, which Kerckringius is reported to have practised to enable him to prosecute his researches and preserve his preparations; but we are compelled to say a few words on the success of Ruysch. This anatomist, to whose eminence as an injector we have already alluded, was, if possible, more eminent in the art of conserving, not merely preparations, but entire bodies. He speaks familiarly of keeping small subjects embalmed for twenty years, in such excellent preservation that they more resembled sleeping than lifeless bodies. His museum is described as a perfect necropolis, all the inhabitants of which were asleep, and ready to speak as soon as they were awakened. "The mummies of Ruysch," says M. Fontenelle in his *eloge* of this anatomist, "prolonged in some degree the visible duration of life, while those of ancient Egypt prolonged only the appearances of death." To this embalmed collection of the lifeless spoils of the tomb all the most distinguished characters of the day resorted, not merely to gratify curiosity, but to obtain the testimony of their senses on subjects so little credible. We are informed that Peter the Great, who visited the museum of M. Ruysch, as one of the most important and precious objects of his curiosity in Holland, actually laid aside his imperial dignity so far as to kiss the countenance of a child, which, even for years after it had ceased to breathe, was animated with the semblance of a living being.

It is infinitely to be regretted that an art so valuable has been allowed to perish with its author. While we think that we have lost little by the secrecy of Ruysch on his method of injecting, we are satisfied that we have lost invaluable, and perhaps irrecoverable information, by his concealment of the methods which he employed to preserve his preparations; and especially the entire subjects which he found requisite in his researches. The value of such a discovery can be appreciated only by those who are in the daily habit of contending with those difficulties which arise from the certain progress of decomposition, or the inconveniences which result even from the employment of the ordinary means of its prevention. When acids or saline substances are used as antiseptics, the instruments are injured; and, in some cases, the dissector is exposed to pain, to peril and inconvenience. In the dried preparation, many parts are rendered indistinct; whereas, by the method of Ruysch, none of these inconveniences were occasioned, while decomposition was completely arrested. According to a promise, indeed, which Ruysch had in a manner somewhat *à la charlatan* made public in the Thesaurus in which he offered his whole collection to sale, he was bound to give Peter the Great, who purchased it, the receipt of the means by which its integrity was to be preserved. We are informed, however, by M. Breschet, that Ruysch had either intentionally given a false receipt, or has been disappointed himself in his estimate of its properties; for the preparations thus treated were found not to be proof against the usual causes of decomposition.

Various attempts have been made since the time of Ruysch, to discover some method of accomplishing the purpose of the conservator, without expense, and without inconvenience; and chemistry has been generally looked to as the principal source from which such advantage might be expected. It is needless to say, that none of these attempts have been attended with any result which could be justly called success; and we have, at the present day, almost as little reason to be satisfied with what we know of this subject, as the anatomists of the sixteenth century had. In such circumstances, any effort like those Mr Swan and M. Breschet, however short it may fall of its aim, must be received without much expectation, and at the same time with some indulgence. To the former of these authors we owe our acknowledgments, for having failed to give an earlier notice of his services to the anatomical arts; and it is that we may pay him the respect which he merits, that we now introduce his work to the attention of our readers. We have perused it with care and interest, and we may add with considerable advantage. We do not indeed recognise many things which are likely to have escaped those who are conversant with the details of practical anatomy; yet, as a compendious and practical manual of directions for the most successful method of resisting the operation of those agents, which, by favouring putrefaction, embarrass the dissector, it is certainly entitled to a portion of our thanks and our approbation. On the merit of originality in the principle of his antiseptic process, we were ready to find serious fault with Mr Swan; for it is well known that M. Chaussier long ago suggested the use of the solution of corrosive sublimate for this purpose; but we found, on examining Mr Swan's work with more care, that he made no distinct claim to this honour; and the most that we can say for him is, that he appears to have been most honestly ignorant of the instructions of the French professor. Another reason which more decidedly prevented us from using any harsh or unfavourable expostulation with our author, is, that we were anticipated by M. Breschet, who has affectionately and patriotically claimed this discovery, as he names it, for his countryman; and has accordingly conferred on M. Chaussier the high honour of ascertaining that corrosive sublimate is an excellent preservative of the dead subject. We do not feel particularly inclined to enter into the merits of this small question; but we are disposed to think, that the agent referred to was not exactly unknown or untried before the time of M. Chaussier; at least it will be found that naturalists were aware of its antiseptic powers in preserving the bodies of the lower animals. *

With the same object in view, the work of M. Breschet is exe-

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* Dict. de Bomare. *Quadrupeds.*

cuted in a different manner. He has treated his subject in a more systematic, and certainly more masterly style. He has shown considerable research in inquiring into the different modes in which animal substances have been most successfully preserved; and has presented to his readers a great proportion of interesting matter on embalming, mummification, &c. We should have certainly further said, that he has shown a very scientific spirit of analysis and investigation, till we found him attributing some events to the operation of time. Now M. Breschet must know, or at least he ought to know, that, though in the expressive language of the poet whom he quotes, time is assuredly a devourer of things, yet the great agent which performs all this business is really the nature of the constituent elements of bodies. The changes to which we allude, undoubtedly require *time* to be accomplished; but they are the result of the properties of those principles, ultimate or proximate, of which the bodies consist, and cannot be said to be occasioned by time with any better reason, than the fruit can be said to be produced by the hand of him that cultivated and manured the earth in which the tree was planted. We must not, however, here dwell on minute criticism of such oversights, but proceed to lay before our readers such information as we can gather from M. Breschet, and our own knowledge of the subject can furnish us.

With a view to the perfect preservation of animal substances, it is requisite to animadvert to the circumstances which favour their decomposition; and these, we conceive, may be referred to three heads. Modern chemistry has informed us, that no decomposition will take place without a certain quantity of humidity, and without a certain degree of heat. But even when these two conditions are present, decomposition does not occur, unless the elements of the substance be such as to enable them to alter their arrangement. If, for example, an entire carcase be left on the sandy deserts of Africa, it is found to lose quickly several stones of its weight, to be shrivelled and dried, but to undergo no putrefactive change. M. B. was informed by Geoffroy Saint-Hilaire, who accompanied the French expedition into Upper Egypt, that they often found among the sands, or in caverns, human and animal bodies completely mummified, wonderfully light, and without any smell or appearance of putrefaction. These bodies, in which the principal forms were well defined, seemed to have been thus accidentally prepared by exposure to a very hot dry air. The same changes must have been induced in those bodies which are recorded by Chardin to have been preserved uncorrupted in the Persian province of Corassan. We are told, that when the ship of the desart is encountered by the fiery simoom, the bodies of the unhappy beings who are too late in shunning its fatal breath, if they escape the jackall and the vulture, are quickly parched and shrivelled like an actual mummy; and, without seeming to undergo any putrefactive change, are often found amidst the sands many years after. In a similar manner, when a carcase is left amidst the snows of the Ural steppes, or on the glaciers of the frosty Caucasus, it will continue unaltered even in weight, and very little in size, for centuries—so long at least as the heat is insufficient to affect it. It has sometimes happened, that travellers in Alpine countries have unwarily fallen into those dreadful fissures or chasms with which the glaciers are intersected, and in which their bodies have been preserved unaltered for a long series of years. Our attention is called to a curious phenomenon of this kind, which is not unfrequent among the glaciers of the Helvetian Alps. It is said, that the hunters of these mountainous districts are often led in pursuit of the chamois and wild goats which roam over these icy steppes, in small herds of 15 or 20,—that they are sometimes lost amongst these chasms, or are actually buried in a *lawine* of snow; and that, as the glaciers progressively melt in the course of many summers, the bodies of these unfortunate adventurers are ultimately exposed, and carried down in the gelid streams which issue from the bosom of these icy fields, in a state of most complete and uncorrupted preservation.* The story of Sir Hugh Willoughby and his companions is well known. A similar fate is reported to have occurred to adventurers in a less glorious cause. Antonio de Herrera,† Garcillasso de la Vega,‡ and the Jesuit Ovalle, agree in relating, that the early conquerors of America proceeded in search of gold mines so far into the interior of the Cordilleras, that they were frozen to death, and, without undergoing the ordinary changes, were left, like the presumptuous offspring of Niobe, as memorials of their irrational ambition and avarice.

These various facts illustrate in a very obvious manner, we conceive, the antiseptic powers of an atmosphere excessively cold, or excessively hot, if it be also dry. But there appears, besides, to be a peculiar state of the atmosphere, connected certainly with extreme dryness, somewhat cool, but not absolutely freezing, which is likewise exceedingly favourable to the preservation of dead animal substances. Not far from Mont Cenis, on the road between Novaleze and Turin, is the *Monte Pickeriano*, on a projecting rock of which, about 480 toises above the level of the Mediterranean are the ruins of the monastery of St Michel,—a picturesque and interesting object. This monastery, which was founded about the close of the 10th century, and belonged to the brothers of the Benedictine order, is now occupied by a single peasant, who keeps the keys of the church, and is principally supported by the generosity of the curious traveller. Among other objects which are here exhibited, the visitor is made to descend a stair, covered by a very elevated vaulted roof, the sides of which present a row of stone tombs, some open, others shut. On a kind of platform along the left side of the wall, the visitor observes a row of dead bodies, placed on their end in various attitudes, which are too high to be easily reached, but which are quickly recognised to be carcases which have been completely dried without putrefaction, or, in short, a species of natural mummies. Saussure, who visited this necropolis in 1787, examined those which were placed in the open sepulchres, and found them very light, and without any bad or putrid odour. The skin had the consistence and pliancy of flexible pasteboard; and where it was rent, the dried muscles and tendons were exposed.

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* Encyclopedie, *Glaciere.* † Herrera, Dec. 5, L. 10. c. 5. ‡ De la Vega, 1 tome.

With regard to the conservation of these bodies, M. S. thinks it probable, that, on an insulated ridge, in a very dry and well-aired situation, which is nevertheless sheltered from rain and other moisture, the carcases may be dried and mummified without undergoing corruption sufficient at least to destroy the skin, muscles, and tendons. M. Exchaquet, he further informs us, has rendered this much more probable by certain experiments, in which morsels of muscular flesh exposed on elevated rocks were dried without acquiring any putrid or disagreeable odour; while similar portions exposed to the open air in the plain, were quickly destroyed by putrefaction.

A similar conservatory is found in the subterranean cemetery of St Michans at Dublin, in which, without any particular antiseptic precautions being taken, the dead bodies which are there deposited are retained in a sort of dry and unputrifying condition for a long lapse of years. We have made some inquiries about this cemetery, and the state in which these bodies are found, and it would appear that, in some, the conversion into *adipocire*, or what Mr B. has absurdly enough denominated *adipification*, had taken place; but that this was by no means a uniform or general change. The very dry quality of the air is said to be the chief cause which prevents these bodies from undergoing the ordinary changes, and which, therefore, must be favourable to their mummification, or *adipocirement*. We would further venture to suggest, that it is by no means improbable that this dry and exsiccating property of the atmosphere is to be referred ultimately to the chemical properties of the soil, which, being composed of the *debris* of rocks, in which the absorbent earths largely predominate, at once supplies no humidity to the contiguous air, and deprives it of that which it may have derived from other sources.

From the manner in which a very dry or a very cold atmosphere prevents animal substances from undergoing decomposition, it is obvious, that the concurrence of heat and moisture is requisite to the process. As soon, indeed, as an animal substance is placed in a situation which is neither so parching as the former, nor so freezing as the latter, it is found to obey speedily the ordinary laws of chemical affinity. In undergoing these changes, however, which collectively are called putrefaction, the circumstances of heat and moisture are merely accessory;—the nature of the constituent elements is the primary and principal cause of the process. Tendon and ligament are not much disposed to putrefy; cartilage exceedingly little, and is seldom altered unless by the ravages of vermin; skin becomes hardened and shrivelled, unless actually immersed in water, and even then it is dissolved very slowly; and no moisture or heat short of actual combustion will alter the state of a piece of bone. Among plants it is well known, that, while the soft and succulent leaves and roots, the mucous stems, and the saccharine fruits and pulps, quickly undergo the changes depending on the mutual action of their elements, the fibrous and woody parts remain little altered; and if the wood be full grown and old, it may last for ages without suffering from decomposition. We have little hesitation in saying, that the oversight of this most important of all circumstances concerned in the decomposition of substances which have once been living, has contributed to obscure the nature and causes of the dry-rot, which has committed most irreparable ravages on the newly built ships of his Majesty's navy. This process, which consists in the decomposition of the wood with the production of a peculiar species of fungus, has been ascribed to the heat and moisture to which the timbers are exposed; and various measures were taken to obviate the operation of these causes without any benefit. More recently it has been suggested, that the presence of the vegetable fluids in the vessels of the wood when felled, was the main cause; and it was therefore proposed to fell the trees in the close of the year, when these fluids had descended towards the roots; and the measure, so far as it goes, is rational enough, though sufficient trial has perhaps not been hitherto made. But the truth is, that neither the trifling precautions which the situation of ship-built timber allows to be employed against the effects of heat and moisture, nor the employment of winter-felled oak, will be of much use, unless the trees which are destined for this purpose be full grown, old, and have acquired by age that firmness of fibre which will resist decomposition in any degree of heat, combined with humidity. It was not the circumstance of the wood being felled in the winter season that enabled the "sovereign of the seas" to stand so long, without injury to her timbers, all vicissitudes of time, climate, and weather, but that there was, at the time when she was built, such a profusion of old solid oak, that not a particle of young wood was employed in her construction. If, indeed, the history of the ancient timber which has been found in such entire preservation in old castles, old churches, and old ships, be examined, it will be found, that the chief reason why they have resisted every species of decomposition, but especially that denominated "dry-rot," is, *that the trees had attained their full growth and age; that they had stood in the forest until the woody part secreted by their vessels had become completely consolidated; and the vessels themselves, when this process was accomplished, had undergone that natural diminution in capacity, which uniformly occurs when the living body has attained the acme of its growth.*

It has been supposed that the oxygen of the atmosphere is of especial use in promoting decomposition. We believe this is one of the many popular errors which the irrational love of the pneumatic chemistry has generated, for it is by no means established, that decomposition does not go on if oxygen be excluded; and we must avow our astonishment, that a philosopher like Sir Humphry Davy sanctions this vague and hypothetic piece of scientific trifling. When a dead body is shut in a leaden coffin, and carefully secluded from air in the tomb, it is not prevented from putrefying; nor will it be said that bodies rot with less facility in the grave than in the dissecting room. The truth is, that decomposition depends not on the presence of oxygen or atmospheric air, but, as we have already attempted to show, on the nature of the constituent elements of the substance; and the only part which the oxygen seems to perform, is that of uniting with some element, as carbon or hydrogen, of the substance, and thus perhaps facilitating the new combinations. The atmospheric air is further the only vehicle for the heat or humidity, the presence of which contributes so essentially to the change.

The principal object of the conservator of an anatomical collection, is to obviate decomposition from either of the causes which we have considered, and to employ such means as may prevent the ravages of insects, or other depredators of the animal world. The action of the internal elements is generally obviated by antiseptic injections, and immersion in antiseptic liquors. The action of the atmosphere, if it has any, may be prevented by immersion in oily or other fluids, and covering the vessel with dried animal membrane, which is to be well varnished and painted; and every kind of decomposing agent may be rendered harmless by the drying or mummifying plan. Mr Swan's method consists almost essentially of this, modified and improved, so as to be as free as possible from the objections to which, under ordinary circumstances, it is liable. The contrivances which he employs with this view may be referred to the following; 1*st*, injection with, or immersion in, antiseptic liquors; 2*d*, desiccation in the air; 3*d*, painting or varnishing externally.

The antiseptic liquor which our author has found most convenient, is the solution of oxymuriate of mercury, which, if used in the manner he recommends, is said to injure neither the instruments nor the fingers of the dissector. This is to be done, of course, previous to dissection; and afterwards, the parts dissected are to be immersed in the liquor for a fortnight. The preparation, whatever it be, is to be then gradually dried by contrivances which our author describes, and ultimately varnished and painted. It is impossible for us, in this place, to enter into all the details, which are indeed minute enough, and will be exceedingly instructive, if properly put in practice. Almost all the internal organs, for example, the heart, lungs, liver, brain, &c. are to be treated nearly in the same way. It is easy to perceive, that in this method the external figure only can be retained; but even this is, in certain organs, a matter of considerable importance. To show the internal disposition or configuration, different portions of an organ must be treated in the same manner. Mr Swan has concluded with directions on the preparation of animals, which is to be conducted nearly in the same manner, and a variety of receipts for varnishes and paints suitable for the purpose. It appears that Mr Swan is not speculative or didactic merely in his instructions. A number of preparations, in which he has employed successfully the means which he has described in his work, were presented to the College of Surgeons of London, and received the approbation of that body.

To illustrate the effects of immersion in solutions of corrosive sublimate, and also as an instance of preservation not without interest, we give the following example from M. Breschet.

"In one of the campaigns of the French army in Germany, MM. Larrey and Ribes had occasion to prepare the body of Colonel Morland, and send it to Paris. The thoracic and abdominal viscera were previously removed by an incision made along the right iliac crest, and by dividing the attachments of the diaphragm and the canals which pass into the superior opening of the chest. An opening, made by the trephine in the posterior part of the cranium, allowed the brain to be withdrawn by repeated injections; and the globe of the eye was emptied by puncture. After introducing corrosive sublimate in substance into all these cavities, those of the face were plugged up, in order to prevent the features from shrinking, and the outlines of the figure were preserved by graduated compresses and methodical bandages; the whole body was wound in several cloths, and placed in a cask, with a saturated solution of corrosive sublimate. In this state it was dispatched to Paris.

"After several months, the cask was opened, and the body found well preserved; on exposure to the air, it dried with rapidity. All the cavities were filled with flax; the membranes of the eye having shrunk to the bottom of the orbit, gave place to eyes of enamel; the hair, eyebrows, and mustachios were preserved; the features could be recognised; and when the body was carefully varnished and clothed, it presented a sort of mournful illusion to those who knew this excellent officer. At the present moment, after several years, the body of Colonel Morland has no peculiar odour, and shews no sign of change. The skin is brown and tanned, and the cellular tissue seems to have disappeared, so that muscular subjects display their forms through the dried integuments."

The antiseptic powers of alcohol, and most of the volatile oils have been long known; they are commonly used for preparations which it is necessary to keep in fluids; and if they are ever employed for dried preparations, it is in the way of varnishes. The acids, either pure, or diluted with water or alcohol, have very great efficacy in retarding decomposition in those tissues which are indurated by them; but unless they are employed with particular care, they are often more injurious than useful, by the solution of the parts immersed in them. With one of those which has been much recommended of late years, we have instituted a considerable number of experiments. We have used the pyroligneous acid as an injection in preserving entire subjects, and as an antiseptic fluid in which to immerse particular organs. In the former instance, though it preserves the muscular system in great perfection, and enables the dissector to continue his labours with more comfort and for a longer time than he could do by most other means, yet it seems not to have any advantage over the solution of nitre, or of bay salt, which is pure muriate of soda. If used with an equal quantity of water, it is very useful in preserving the brain or any of the nerves for a very long time. But the best combination for this purpose, is two parts of spirits, and one of strong pyroligneous acid; and, indeed, this will be found to be one of the most generally convenient mixtures, in which all kinds of parts except osseous ones may be very well and economically preserved.

It has been doubted whether the pyroligneous acid possesses of itself any peculiar power in preventing the putrefactive decomposition, or owes its antiseptic properties to its combination with the oil of wood,—the empyreumatic agent, which results from the combustion of vegetable matters, and which is employed in commerce as an antiseptic to all the smoked animal substances. From the great facility with which various articles of food prepared or *cured* in the technical style by smoking, are enabled to resist decomposition for any length of time, it has been justly concluded that this oil must exert at least a powerful auxiliary effect; and we have been informed, that in Germany, this method of conservation has been successfully tried with the human subject. As a more cleanly and not less efficient method, we have employed the crude acid of wood, in which the empyreumatic substance greatly predominates, as an injection for preserving the human body; but the odour to which it gave rise, was in general so strong and unpleasant, that it was impossible to give it a fair trial.

The mummifying plan of conservation is, however, by no means such as to be free from all objections. Many of the parts thus preserved are rendered smaller and less distinct than they are in nature; and almost all are deprived of their natural colour. It is likewise impracticable in this manner to communicate any other information than that which relates to the external figure of an organ; and those which vary in size in the living body, are necessarily represented in one uniform state. The heart and lungs must be represented at their extreme distension; the muscles are rendered hard, shrunk, and immovable; and the membranes and ligaments are in general so rigid, that any attempt to make them alter their figure or situation is generally attended with considerable injury, or irreparable disunion. This method of conservation is indeed chiefly suited to preparations of the arterial system, in which, while it does not in any injurious degree affect the distribution, course, or texture of the vessels, it adds so much to the neatness, cleanliness, and even the elegance of the preparation, that it is hardly possible to conceive any other plan, which could, for this purpose, be substituted for it with any success. But although it be thus convenient, if employed exclusively to preparations of this description, the disadvantages which result from its general adoption to the preservation of every kind of texture, or organ, or system of organs, are too obvious to prevent us from desiring a process, which, with equal powers as an antiseptic, would less alter the structure, figure, and general appearance, or properties of tissue, as they are named, of the animal body. Neither Mr Swan nor M. Breschet have carried their researches to this degree of perfection, so far as we can discover; but we have extreme pleasure in noticing, that M. Bogros, one of the unsuccessful *concurrents* with M. Breschet, has discovered a process by which the purpose to which we are now adverting, is reported to be completely accomplished. It is no ordinary recommendation of M. Bogros's method, that in simplicity and generality of application it is greatly superior to any that has yet been proposed. This ingenious conservator's method consists in immersing the subject, or portion to be preserved, in a mixture of two parts of oil of turpentine, and one part of alcohol, at 827 or 847, which must be frequently agitated. By means of this fluid, according to M. Bogros, the anatomist may prepare natural skeletons, in which the articulations preserve their mobility; he may dry the muscles, without destroying the appearance of their constituent fibres; and he may preserve other organs, as the brain, liver, and lung, without altering their figure or their natural pliability.

In order to prepare a skeleton with flexible articulations, M. B. recommends, after the usual exposition and dissection of the ligaments, and after several washings with tepid water, especially during the winter, to envelope them in cloth, that the fluids may be more effectually expressed from them. The subject thus prepared, is then to be immersed for twelve or fourteen days in the mixture of turpentine and alcohol; after which, it is to be exposed to the air, while care must be taken to move gently each articulation daily. When it has been half dried by this process, it is necessary to the pliability of the articulations, to immerse the skeleton once more in the fluid, for the space of seven or eight days; and then, while the daily motions of the articulations are continued, to dry it thoroughly.

In preparing the lung, it is obvious that the organ must be perfectly sound. It is to be drawn from the cavity of the thorax, while the heart and thoracic aorta are left. The blood contained in these parts must be as accurately removed as possible, by repeated washings. The trachea and large vessels, are then to be filled with the mixture of turpentine and alcohol; and the whole organ is to be immersed in the same fluid for twenty or thirty days; after which, it is to be taken out, the blood-vessels are to be filled with injection, and the whole to be dried,—while the lung is occasionally inflated, in order to preserve its pliability and mobility.

Such is the process of M. Bogros, as we have received it. Of its success we cannot speak from our own personal experience; but we have been assured, that in the hands of M. B., it accomplishes every thing which its author promises; and in doing so, it certainly has a very great advantage over every other method that has yet been offered to the attention of the practical anatomist. In the description of its effects, indeed, it comes exceedingly near to those which Ruysch produced in his preparations; and by the combination of proper colouring matter, it might, when used as an injection, realize some of those wonders which have been ascribed to the skill and address of the Dutch Anatomist.

II.

1. *De L'Auscultation Médiate; ou Traité du Diagnostic des Maladies des Poumons et du Cœur, fondé principalement sur ce Nouveau Moyen d'Exploration.* Par R. T. H. LAENNEC, D. M. P., Médecin de l'Hôpital Necker, Médecin honoraire des Dispensaires, Membre de la Société de la Faculté de Médecine de Paris et de plusieurs autres sociétés nationales et étrangères. 2 vol. 8vo. A Paris, chez J.-A. Brosson et J.-S. Chaudé, Libraires, rue Pierre-Sarrazin, N° 9. 1819.
2. *A Treatise on the Diseases of the Chest, in which they are described according to their Anatomical Characters, and their Diagnosis established on a New Principle by Means of Acoustick Instruments. With Plates.* Translated from the French of R. T. H. LAENNEC, M. D. with a Preface and Notes, by JOHN FORBES, M. D. Physician to the Penzance Dispensary, Secretary of the Royal Geological Society of Cornwall, &c. &c. 8vo. London, Underwood. 1821.

THE valuable work now before us may be considered in two distinct points of view; the one as extending our knowledge of the pathology of the diseases of the chest, and the other as rendering their diagnosis more certain and easy. Whatever may be thought of the accoustical instrument which M. Laennec has invented for bringing within the scope of one of the most accurate of our senses, modifications in the performance of the vital functions, which previously had scarcely been objects of observation, there can be but one opinion entertained of the value of the pathological information contained in the present publication.

In the History of Medicine, the present period will be characterized by the progress made in the study of Morbid Anatomy, and its beneficial applications to Nosography and Practice. Its importance seems to be duly appreciated in every civilized nation; and it is prosecuted with equal zeal and advantage in both the old and the new world. To Italy indisputably belongs the merit of commencing the study of morbid anatomy; and Anthony Beniveni, a physician who died at Florence in 1502, was the author of the first publication upon the subject, *De abditis nonnullis ac mirandis morborum et sanationum causis*, 4to. *Florent.* 1507. He was followed by Columbus, Fallopius, Eustachius, Vesalius, Arantius, Donatus, Fabricius, Fantoni, and many others, until, in 1761, Morgagni's immortal work was produced, in which all the most authentic observations of his predecessors were combined into a system, with the still more valuable observations of himself and his preceptor Valsalva. The physicians of Holland and the Netherlands were not long of emulating those of Italy in the cultivation of morbid anatomy; and the writings of Lommius, Wier, Coiter, Dodonæus, Forestus, Paw, Kerkringius, Tulpius, Blasius, Stalpaart Van der Wiel, Ruysch, Bidloo, &c. are still consulted with some advantage. It seems to have been early cultivated in Switzerland by Plater, Schenkius, Hildanus, and Bonetus, whose voluminous compilation furnished Morgagni with great part of the materials, which he employed with more selection and skill. In Germany and the north of Europe, the earliest cultivators of morbid anatomy were Kuntmann at Torgau, who first pointed out the varieties of urinary calculi, Sennertus, Bartholinus, Wepfer, Horstius, &c; in France, Ballonius, Riverius, Borellus, Riolanus; and in Britain, Harvey, Willis, and Cheselden.

It is not our intention to write a history of the progress of morbid anatomy; we shall therefore pass on to the classical work of Dr Baillie, in which the various morbid alterations of the several organs of the body are so ably described and depicted. Dr Baillie's publication was, however, too concise for the purposes of the practical physician; and although, by being the result, almost entirely, of personal investigation, and the possession of Dr W. Hunter's museum, it thereby acquired perfect confidence as to its accuracy; yet, from want of frequent references to the observations of his predecessors, it gave little assistance towards the further investigation of any particular point. In this respect, the laborious and accurate work of Voigtel, to which P. F. Meckel gave his countenance and assistance, has left us little to desire, as he has taken advantage of every source of information, while the substance is generally well condensed. The precision of his references, and the admirable arrangement, render it easy to consult the originals when within our reach.

Hitherto morbid anatomy was considered chiefly in relation to entire organs, without appreciating the connexion of the deviations from the healthy state with each of the tissues or textures of which the organs are composed. Whatever traces of this view may be discovered in earlier writers, Dr Carmichael Smyth is entitled to the honour of having, in his celebrated paper on Inflammation, first decidedly and unequivocally pointed out the influence of difference of texture on pathological states of the body. It was in France, however, that general or textural anatomy was reduced into a system by that extraordinary genius Bichat, to whose merits we had lately an opportunity of paying a just tribute of applause. Since the appearance of Bichat's *Anatomie Générale*, the study of morbid anatomy, as connected with texture, has been zealously and successfully prosecuted in France, as well as in other countries; and the great advantages enjoyed by the medical attendants of the hospitals in Paris, have enabled them to furnish us with a series of monographies entitled to the highest praise, as calculated to improve Nosography, Diagnosis, and Practice. It is in vain, that, without a constant reference to the organic changes in textures and structures which are connected with most diseases, we attempt to form nosological arrangements from the grouping of recognisable symptoms. If we read over the most striking descriptions of any disease, we find that every symptom is stated to be subject to great varieties of form, and even to be not unfrequently absent, or that the very reverse is occasionally present. We also find, that very often symptoms not generally present appear, in certain cases, to be the most characteristic and important. We observe that we cannot recognise many diseases by the presence or absence of any one symptom, nor even of several symptoms. We are left in doubt concerning the manner in which the varieties of symptoms are connected, which of them imply or exclude the presence of others; and when a more accurate observer descends to the minuteness of describing actual varieties of the species of disease, we still are not satisfied of the necessary relation and connexion between the symptoms, until, by a perfect acquaintance with the morbid anatomy of the disease, we acquire a conviction of the dependence of the symptoms upon organic causes existing in the body. In illustration of the great assistance that Nosography may derive from morbid anatomy, we may refer to almost every chapter of Cullen's First Lines; and, as connected with the subject of the present article, to his history of Pneumonia, in which he confounds, under one name, diseases totally distinct as to their seat, and sufficiently characterized by their symptoms. It may be alleged, that the study of morbid anatomy may be carried too far, and that it tends to introduce hurtful refinement, and to multiply unnecessarily the species and varieties of disease. But the same objection has been made to all improvement in all time past, and will continue to be made for ever; and, as in all other cases, it will, and indeed already does appear, that by increased knowledge our views are rendered more precise, simpler, and more easily communicated.

M. Laennec has arranged his work according to the diagnostic signs discovered by himself as indicating the presence of certain diseases. This, in an inventor, was natural enough; but we cannot approve of this arrangement, as it represents the pathological observations as secondary in importance to the signs detected by the stethoscope. Perhaps Dr Forbes has therefore done wisely in separating his translation into two parts, and in confining the first to the pathology, and the last to the new diagnostic characters.

In the following article, we shall attempt to give a systematic and connected view of the pathology of the chest, and subjoin to each morbid state its diagnostic characters; premising to the whole the description of M. Laennec's instrument, the means of using it, and the advantages it presents.

The instrument itself, and the mode of its application, are extremely simple; but experience and tact are both necessary to derive the greatest advantage from mediate auscultation, as Laennec has called it.

The object of the instrument is to increase the intensity of the sounds and motions which take place within the cavity of the chest, so that they may be perceived by the observer; and by experience, the habit of distinguishing the nicer shades of difference in those which occur, and skill in drawing from them just inferences, are to be acquired.

The direct application of the ear to the breast, to discover, by means of sound, the presence of certain diseases, was recommended by Hippocrates himself; but the operation, in its nature indelicate and disgusting, after all furnished so little information, that it never was much employed.

In 1816, M. Laennec was consulted for a young woman, who had general symptoms of disease of the heart, and in whom the common modes of ascertaining its nature was not applicable on account of her corpulence. The age and sex of the patient did not permit the direct application of the ear, as advised by Hippocrates; and M. Laennec, recollecting the common acoustical phenomenon, that if the ear be applied at one end of a plank, the scratch of a pin at the other is distinctly heard, conceived that advantage might be taken of this property in such a case. He accordingly took up a quire of paper, and forming of it a very tight roll, he was agreeably surprised to find, that when he applied one end to the region of the heart and the other to the ear, he heard the pulsations of the heart, much more distinctly and clearly than he had ever been able to observe them with the ear directly applied. After this discovery, he employed himself incessantly in making observations, and in attempting to improve his instrument. The first he employed was the roll of paper, and the accidental circumstance of a tube always remaining, however tight it may be rolled up, led to the important observation, that it was necessary for the investigation of the voice, while a solid cylinder answers perfectly for the heart.

The most dense substances are not, as might be supposed, the fittest material for these instruments. Glass and metal, besides their weight, and the sensation of cold which they cause in winter, communicate the pulsations of the heart, and the sounds of respiration, and rattle, much less distinctly than less dense bodies. This unexpected observation led M. Laennec to try a still less dense material; and he contrived an inflated cylinder of gold-beater's leaf, but it did not answer at all; and he has constantly found, that substances of a middle degree of density, such as paper, wood, and cane, are to be preferred to all others.

The dimensions of the instrument are not indifferent; a greater diameter prevents the exact application of the end to the unequal surface of the chest; and by experience we find, that even a small diminution in the diameter of the instrument greatly injures it; if too long, it is difficult to keep it steadily applied; and if too short, it often obliges the physician to put himself into an uneasy attitude, which, in order to observe well, it is necessary to avoid.

M. Laennec made various changes upon the form of the instrument. He used a tube of wood 1½ inch in diameter, with thin edges, and a wooden trumpet like a hautboy, three inches in diameter at its larger end, and one at its smaller extremity; but the result was the reverse of what he expected, for the power and accuracy of the instrument were diminished.

The instrument which M. Laennec found, after many trials, to answer best, was a cylinder of wood, about an inch and a half in diameter, and a foot long, pierced longitudinally with a hole three lines in diameter, the hole being widened at one end in the form of a funnel, to the depth of about an inch and a half, and nearly the whole diameter of the cylinder, with a pierced conical stopper fitting this aperture, and which, when introduced, converts the whole instrument into a pierced cylinder. For some purposes, the instrument is used with, and for others without, the stopper. For convenience, Laennec divides it by a joint in the middle, and he furnishes the stopper with a short tube of copper; but these are not essential.

It is used by holding it as we do a pen in the fingers, and near to the stoppered end, which is then applied firmly and fairly upon the parts of the chest we wish to examine, while the ear of the observer is laid closely upon the other end. Nothing more is necessary, except that, in some cases where the surface of the chest is very unequal, the space left between any part of the circumference of the end of the instrument, and the part of the chest to which it is applied, is to be filled up with cotton, or some soft substance. In examining with the stethoscope, all external noises must be carefully guarded against, especially those caused by rubbing the instrument with the fingers, or against the clothes of the patient; and when the voice is to be investigated with a view to pectoriloquism, the patient must be directed to turn away his mouth; and we have found the most convenient mode of hearing the speech, is to direct the patient to repeat the numerals slowly and distinctly, after we are perfectly prepared by the proper application of the instrument to attend to the result.

One great advantage of this means of exploring the diseases of the chest, is, that it neither fatigues nor offends the delicacy of the patient, as the intervention of their clothing scarcely impairs the distinctness of the results.

It is, however, only in Hospitals that the habit of using it can be speedily and satisfactorily acquired, where there is an opportunity of comparing the phenomena in a number of individuals affected with similar diseases; and in this respect, the manner in which the Hospitals of Paris are conducted, gives them a decided advantage over our own. They are all under the care of a general administration; and from the office of the board, where medical men attend during a certain part of the day to examine them, patients are sent to the different hospitals. By means of this arrangement, the physician of any hospital, whose attention is more particularly turned to any disease, or class of diseases, may, by application to the office of Central Administration, have such diseases sent to his own hospital.

The organic phenomena, to the examination of which the stethoscope is adapted, are,

1. The action of the heart; 2. The sound produced in the lungs during respiration; 3. Pectoriloquism, or the transmission of the voice through the parietes, or sides of the chest, in certain affections of the lungs.

1. For examining the action of the heart, Laennec says a solid cylinder answers best, or one pierced with a uniform bore, such as the stethoscope is, with the stopper introduced. When one end of the instrument is applied to the region of the heart, and the ear to the other end, we perceive distinctly the alternate contraction of the auricles and ventricles. By the proper application of the stethoscope to the præcordia, two kinds of impression may be received, which it is not always easy to dis-

tinguish; the one a mere mechanical impulse, communicated by the cylinder to the ear, and produced by the point of the heart striking against the ribs, when the ventricles contract, and synchronous with the pulse; and the other a double sound, one duller and slower, accompanying the contraction of the ventricles; and another sharper and quicker, which is that of the auricles.

The stethoscope gives information on various points connected with the action of the heart: *1st*, the exact situation in which, and the extent over which, it can be perceived; *2d*, the stroke, shock, or force of the impulse of the organ; *3d*, the nature and intensity of the sounds which accompany it; and, *4th*, the rythm or succession in which its different parts contract. The particular consideration of each of them we must postpone to another opportunity, when we mean to give a full view of the pathology of the heart.

2. This instrument is also well adapted to the investigation of variations in regard to the respiration, which cannot be ascertained in any other way. For this purpose, it answers best without the stopper, as it thus takes in a larger space of the chest, and magnifies, as it were, the sound perceived.

If the stethoscope be applied to the chest of a healthy adult, there is heard, during expiration and inspiration, a gentle murmur, which accompanies the passage of the air into and out of the innumerable cells of which the lungs consist. In some cases, this murmur is so slight as not to be audible without very great attention; but its total absence in some parts of the lungs, in consequence of disease, is generally attended with an increased intensity in the parts which remain sound, thus facilitating the investigation. The murmur of healthy respiration is loudest in infancy, and decreases with advancing age; and the return of respiration in adults to the puerile state, indicates either disease, or more commonly the cessation of disease, in which respiration had been partially suspended.

But besides the gentle murmur of respiration, the stethoscope often discovers other sounds within the chest, much more loud and noisy, forming what may be called different species of rattle or *rale*. Of these very few are heard by the unassisted ear, except what is called the dead rattle, when mucus is collected in the windpipe, the crowing of croupy infants, and wheezing of some asthmatics. Laennec describes four chief varieties of *rale*. 1. The mucous or guggling rattle, which is caused by the passage of air through mucus or fluid in the windpipe, or some of its branches. A perfect idea of this may be given, by comparing it to the dead rattle which is heard by the unaided ear. 2. The humid or crepitating rattle, which may be compared to the crackling of salt when decrepitated by heat, or to the sound produced by compressing a portion of healthy lung between the fingers, but stronger. 3. The dry whistling rattle presents great varieties, which may exist at the same time in different parts of the lungs, or succeed each other at uncertain intervals. This is owing to the presence of mucus in small quantity, but of a very viscid nature. 4. The dry sonorous rattle, which sometimes resembles exactly the snoring of a person asleep, or the sound of a bass-string drawn through the fingers, or the cooing of the turtle-dove. The cause of this species of rattle is not ascertained. It is always limited to a small portion of the lungs, and seems to be owing rather to an alteration in the form of the bronchia or air-tubes, than to any fluid present in them.

3. The last subject for which the stethoscope is adapted, is Pectoriloquism, of which the existence always indicates with certainty the coexistence of a cavity within the substance of the lungs.

When the excavated end of the stethoscope is applied upon the trachea of a healthy person, and the ear of the observer laid upon the other, and the person to whose trachea it is applied pronounces some syllables, the voice of the speaker, proceeding from his mouth, is heard by the observer, not only in its natural tone and force by the ear which is free, but it is heard modified and hollow by the ear applied to the instrument, as if it proceeded through the bore of the tube. This is the perfect prototype of pectoriloquism; a term which is applied by Laennec to a similar phenomenon, which is observed when the excavated end of the instrument is applied over a cavity of the lungs communicating with the trachea by means of a bronchial ramification. Such cavities are produced almost solely by the discharge of a tubercle by expectoration, after it has become softened, in an advanced stage of tuberculous consumption; and therefore, pectoriloquism is a certain pathognomonic sign of this most fatal disease.

The discovery was made by Laennec, to a certain degree, by accident; for he was first struck with it, when causing a patient to speak while he was examining her lungs by the stethoscope. After this, he did not rest until he had discovered the cause of this unexpected phenomenon.

Of the power of the stethoscope in detecting, by means of this sign, the presence of true pulmonary phthisis, when employed by a person skilled in its use, we may judge by the following strong statement.

" In more than 200 phthisical patients whom I have opened, after having ascertained their state by means of the cylinder, I have not failed in one instance to find ulcerated cavities in a point of the lungs where I had observed evident pectoriloquism ; and as in most of these subjects I had observed it in several points at once, I possess really in regard to this fact some hundred positive observations, and not one negative. On the other hand, I have never met with pulmonary excavations communicating with the lungs in a person whom I had examined completely for a series of days, without detecting pectoriloquism."

Pectoriloquism is not uniform, but, like other phenomena, subject to considerable variations.

1. It may be either *evident* or *doubtful*, in various degrees.

It is doubtful, when, on applying the stethoscope to any part of the chest, the voice of the patient seems a little sharpened and slightly modified, like that in ventriloquism, or when it sounds under the cylinder with a little more force than it is heard by the naked ear, without however seeming evidently to come through the tube.

A very perfect idea of doubtful pectoriloquism may be obtained, by applying the stethoscope between the under edge of the shoulderblade and the spine, at the place corresponding to the origins of the bronchia, in a person who is thin, and has a sharp voice, but is otherwise healthy.

In many cases, therefore, no conclusion is to be drawn from doubtful pectoriloquism, if it be only heard at that spot, or under the armpit, or at the junction of the sternum with the clavicle. And this caution may be extended to the whole upper and anterior portion of the chest, as far down as the third rib, where the phenomenon is *very doubtful*, and exists *equally* on both sides; because the top of the upper lobe of the lungs has proportionally more bronchial ramifications of a certain size than the other parts; and these branches, sometimes superficial, give rise to the phenomenon of pectoriloquism, especially when the lung is adherent to the pleura.

2. Pectoriloquism may be also considered as *perfect* or *imperfect*, in various degrees.

When in any part of the chest the voice is heard much stronger than in the opposite side, and especially, if it be so intense that it seems much stronger and nearer to the ear of the observer, than he hears it with the naked ear, the pectoriloquism is imperfect, but not doubtful.

There is a kind of imperfect pectoriloquism so peculiar, that Laennec has given it the name of Egophonic. The voice sometimes, though rarely, seems to enter into the tube, without scarcely ever traversing it. It also becomes more acute and harsher than that of the patient, and in some degree silvery; and it produces such an illusion, that you would think some one spoke within the breast of the patient. It is also somewhat trembling or pulsating, like the voice of a goat, and its quality is not unlike that of the same animal;—or it may be described as exactly resembling the voice of Punch in the puppet-show.

Pectoriloquism is more evident, in proportion as the voice of the patient is of a more acute quality; and accordingly, it is heard most strikingly in women and children, that is, exactly in those individuals with whom we must be most upon our guard, not to be deceived by doubtful pectoriloquism, when it exists naturally in certain parts of the chest.

On the contrary, with men who have a very deep voice, the phenomenon is often very imperfect, and even doubtful, although there exists in the lungs an excavation of that kind most proper to produce it. When the voice is very deep, and when it resounds strongly within the chest, the vibration of the parieties of the thorax is sometimes so great as to conceal the pectoriloquism; and the voice of the patient is only modified, as if he spoke through a speaking-trumpet, very near the observer, but not as if he spoke through the tube.

Pectoriloquism is also subject to several other modifications. Sometimes the voice passes uniformly through the cylinder; sometimes it is in some degree intermittent; and, for an instant only, some words in a sharper tone penetrate the tube, and strike the ear of the observer. This kind of intermission seems to take place when the excavations communicate with bronchia of a small diameter, or by openings which are partly obstructed by sputa; but the diagnosis in this case is equally certain, as in continued pectoriloquism.

The most perfect and continued pectoriloquism is sometimes suspended from a similar cause. Frequently after a few hours, or even after a few minutes, we shall not be able to hear it, in patients who before emitted it in the most striking manner; but upon this occasion, the mucous rattle, which will be heard in the spot where the pectoriloquism was observed, leaves no doubt as to the cause of its suspension; and hence we must never venture to pronounce, that a phthisical patient is not a pectoriloquist, until we have examined him repeatedly, at different hours of the day, and especially after he has expectorated.

There are also some varieties of pectoriloquism, in regard to the voice itself. The articulation of the words is heard more or less distinctly, and the nature of the sound is more or less altered.

From considerable experience, as great perhaps as that of any person in this country, we have convinced ourselves of the value of the stethoscope as a means of diagnosis in the diseases of the chest; and the observations we have had opportunities to make, induce us to place implicit confidence in the finer distinctions mentioned by Laennec, which we have not yet acquired skill enough to reach. We have said that the application of this instrument is easy—and so it is; but still it requires attention and some adroitness to apply it properly at one end to the chest of the patient, and at the other to the ear of the observer; and the awkwardness of some persons in so simple an operation, is incorrigible. These throw aside the instrument with contempt, and pronounce it of no use, because they have obtained from it no accurate observation; but as well might we reject the telescope as useless, and reckon fanciful the observations of the astronomers, because it is not until after long practice that any one is capable of making them. An *auditus eruditus* is to be acquired only by attention and practice as a *visus* and a *tactus eruditus* are acquired. Any one who will take the trouble to apply the cylinder with tolerable attention and adroitness, to the chests of half a dozen of patients in an hospital, will easily satisfy himself of the great diversity to be observed in the action and rythm of the heart, and in the sounds caused by respiration; and as these depend upon the physical state of the organs, the one is a certain indication of the other. Notwithstanding this broad assertion, we readily admit, that, from deficiency of skill and knowledge, we have been occasionally deceived in our diagnosis and prognosis deduced from this method of observation; but the same thing is true of the pulse, heat, tongue, urine, dejections; but we do not on that account cease to observe them. In an hospital, where the thorough examination of every patient, whatever the malady be, is a matter of course, nothing is thought of it, and no bad consequence can follow. But in private practice, we have found the greatest objection to its use arise from its leaving no doubt in many cases of tuberculous consumption, as to the incurable nature of the complaint, so that we could no longer flatter ourselves, or honestly support the spirits of our patients by holding out any hopes of recovery; in such cases, it is not to be employed without mature deliberation. On the other hand, it has someimes enabled us to give a favourable prognosis, afterwards verified, when, from the symptoms, all hopes of recovery were lost by the patient and his friends; and it has convinced us of the possibility of recovery in a small proportion of cases of genuine tubercular consumption, which the work of Bayle and our own observations had led us to doubt; and thus, instead of relinquishing in despair such patients to their fate, or putting them to an useless expense, and sending them to die at a distance from their friends, we are encouraged to greater perseverance and more unremitting attention. We need scarcely point out, as an advantage of the stethoscope, that if it really enables us to distinguish the presence of true tuberculous consumption; it is calculated to check the false reputation of many remedies and modes of treatment, acquired by their having been employed in other affections, mistaken for phthisis, and to render dishonest pretensions less imposing.

We now proceed to give a sketch of the pathology of the lungs, as elucidated by our author.

The diseases of the lungs may be considered as affecting either, *1st*, The mucous membrane lining them; or, *2dly*, The serous membrane covering them; or, *3dly*, The parechyme lying between these. The disease may be confined to one of these textures, or it may affect any two of the contiguous textures, or all of them at the same time.

The affections of the mucous membrane of the lungs, are inflammation and its consequences; and dilatation of the bronchia, or of the air-cells. The two last are rare occurrences; the first is very common, both as an idiopathic disease, and as symptomatic of other affections.

Bronchitis.—Upon the various forms of the inflammation of the lungs, we already possess much valuable and accurate information in the writings of our own countrymen, Badham, Cheyne, Duncan senior, Armstrong and Hastings, besides many able observers in the periodical publications, as our valued correspondent Dr Abercrombie, and older writers, who have described its several varieties of catarrh, influenza, croup, peripneumonia notha, and phthisis catarrhalis, but are not once named by M. Laennec,—an omission which we ascribe, not to national jealousy, but to the general ignorance of the French of the writings of other nations.

The progress of inflammation of the mucous membrane of the lungs is the same as of other mucous membranes; but the symptoms are modified by the function of the part. The secretion, which, in a state of perfect health, is exactly sufficient to keep the membrane moist, and to compensate for the evaporation caused by the passage of the air in respiration, over it, is speedily altered by the occurrence of inflammation. Its deficiency in the first stage excites hard dry cough, in consequence of irritation and impeded reaction of the blood and air upon each other in the lungs; and the sputa in this stage seem to consist solely of saliva and the mucus of the mouth and throat. The secretion then becomes increased in quantity, but altered in quality. It consists chiefly of a glutinous semitransparent fluid, intermixed with gray particles. In a latter stage, it becomes intermixed with opaque sputa of a whitish, yellowish, or greenish colour; and at last the thin fluid disappears altogether, and the expectoration becomes entirely puriform, or particled. Notwithstanding its consistence, it is however almost always frothy. In some cases, especially when the trachea or larger bronchial trunks are the seat of the disease, it seems to contain more animal matter, and by the passage of air over it, gets exsiccated, and gives rise to a false membrane, as in croup. When the secretion is very thick and abundant, it causes a sense of suffocation, by impeding the oxygenation of the blood, and renders its expectoration by cough necessary. A greater or less redness, and a certain degree of thickening of the membrane, are the only anatomical characters of this affection; and even these cannot be always detected. It very rarely happens that the inflammation occupies more than a portion of one lung; but it probably migrates from one part to another. Bronchitis is frequently a secondary or symptomatic disease, as in measles, and other exanthematous fevers, chincough, pulmonic fever or typhus, and pneumonia, or from tubercles, or other irritating bodies in the lungs themselves. In its idiopathic form, it occurs sporadic, endemic, epidemic, and contagious, more or less acute, and accompanied with very different degrees and modifications of fever. It commonly terminates by resolution, or induces death by suffocation.

Percussion by the points of the fingers on the ribs, in the manner recommended by Auenbrugger and Corvisart, enables us to distinguish pulmonary catarrh from peripneumony, as the sound emitted is natural in the former case, and dull in the latter; but in this respect phthisis pulmonalis coincides with catarrh; but by means of the stethoscope they are readily distinguished; for in catarrh, there is no pectoriloquism; and the extent and kind of the rattle caused in respiration, by the passage of the air through the mucus in the air-cells and bronchial tubes, enable a skilful observer to ascertain the seat, extent, and severity of the disease.

Dilatation of the Bronchia has been rarely observed. It cannot be detected unless by tracing the individual bronchial tubes to their ultimate ramifications. The dilated portions terminate in *cul-de-sacs*, of which the mucous membrane is commonly of a red or violet colour, and is evidently thickened, the cartilaginous circles seem to be converted into fibrous tissue, and are so closely united with the mucous coat as to be inseparable by dissection. It may exist in any part of the lungs, but is most common in the superior lobe. It is commonly confined to a small portion; but sometimes extends to all the bronchial branches of one tube. In this case the intermediate substance is flabby, void of air, and evidently compressed. It is always produced by chronic catarrh, or by some other disease, attended by long, violent and often repeated fits of coughing, as in hooping-cough. When the disease is confined to a small number of bronchia, it produces no other inconvenience than a slight habitual cough with moderate mucous expectoration; but when the organic change is considerable, the result is a chronic catarrh, which lasts for life, attended by dyspnœa, severe and long continued fits of coughing and abundance of sputa, which are of a grayish yellow colour and puriform.

Before the observations of Laennec, dilatation of the air-cells, or *Emphysema* of the lungs, was correctly observed by Dr Baillie, under the heads of "lungs distended with air;" "air-cells of the lungs enlarged;" and "air-vesicles attached to the edge of the lungs."

Percussion furnishes us with no additional diagnostical characters of these affections, but pectoriloquism is heard when any of the larger bronchia are considerably dilated; and in dilation of the air-cells, the natural sound of respiration is scarcely heard, although the chest on percussion is at least as sonorous as in health.

Asthma.—Notwithstanding the great attention lately paid to the appearances after death in diseases of the lungs, the pathology of asthma is still very obscure, and various diseases are included under that title. Corvisart has shown, that in many cases, usually called asthma, the lungs themselves are perfectly healthy, and that the difficulty of breathing is merely symptomatic of an affection of the heart impeding the circulation; and what is remarkable, the difficulty of breathing, in these cases, often returns in nocturnal paroxysms, although the cause of the disease is organic and permanent. Humid or humoral asthmas are merely aggravated examples of chronic catarrh; and Laennec is of opinion, that many of the cases, considered to be nervous or spasmodic asthma, will turn out to be organic lesions, not yet sufficiently known, such as dilatation of the bronchia or air-cells. He does not however deny, that there may be asthma or dyspnœa purely nervous, or unattended by any organic lesion of the parts concerned in respiration; but he adds, that spasmodic asthma, well characterized by an evening paroxysm and a morning remission, after a slight expectoration, is an extremely rare disease. Accordingly, since he began his investigations, he has not met with cases to allow him to ascertain the morbid anatomy of the disease.

The pathology of the spasmodic diseases of the chest, especially of asthma, is still very obscure. The seat of the affection is not even ascertained. Some have supposed the spasm to exist in the ordinary muscles of respiration; but this does not seem to account for the phenomena, several of which rather indicate a spasmodic action in the lungs themselves; although this has not been generally admitted, because muscular fibres have not been demonstrated in their substance. In the lungs of the bullock, however, in which the branches of the trachea do not ramify so soon as in man, but are continued of considerable size almost to the margin of the lobes, the two strata of muscular fibres which line the trachea, may be easily traced through their substance, as far as the bronchial tubes themselves are visible.

The Diseases of the Pleura consist either in a pathological state of the membrane itself, or in effusions of various kinds into its cavity.

Pleurisy differs from inflammation of other serous membranes only as affecting the function of respiration. It is either acute or chronic; the anatomical character of acute pleurisy is redness of the part affected. This redness is in some sort punctuated, and looks as if there had been traced with a pencil upon the pleura an infinity of small bloody spots, of very irregular figure, and close to one another. They occupy the whole thickness of the membrane, and leave small intermediate portions of the natural white colour.

Laennec is doubtful of the thickening of the pleura from inflammation; and is of opinion, that, in the greater number of cases, the supposed thickening has been either an extensive congeries of miliary tubercles on its surface, or a cartilaginous incrustation on the parts covered by it, or false membranes adhering to it. Inflammation of the pleura is always accompanied by an extravasation on its inner, or free, surface, which may be considered as a species of suppuration proper to serous membranes. It appears to commence with the inflammation itself, and consists of two very different matters, the one of a firmer semi-concrete substance, usually termed coagulable lymph, and the other very thin and watery; both of which exhibit great variation of character. The relative proportion of the effused serum and albuminous extravasation is very various. Generally speaking, the more violent the inflammation the more extensive and thick is the membranous exudation; and in weak, leuco-phlegmatic subjects, the serum is so abundant, that it passes insensibly into hydrothorax. In the progress of pleurisy towards a cure, the first step is the reabsorption of the fluid. This can be only observed in persons who are cut off by other diseases at this time. In them we find a white, almost colourless, semitransparent exudation, which, while recent, readily allows the separation of the parts it unites, and remains on the surface of each exactly like a thick and moist paste, which had united two leaves of paper. It is the character of the false membranes produced in pleurisy to be changed into cellular substance, or rather into a true serous tissue, like that of the pleura itself.

Chronic Pleurisy either succeeds to the acute form of the disease, the cure of which is interrupted by any cause preventing the absorption of the effused fluid, and the conversion of the false membrane into cellular substance; or it is originally chronic. This latter variety exhibits, in none of its stages, the intense fever, power of reaction, and acute pain that constitute an active disease. It usually attacks subjects of a worn-out constitution, more especially such as have suffered from a tubercular affection of the lungs or other organ.

Chronic pleurisy does not differ essentially in its anatomical character from the acute. The effusion commonly becomes daily more considerable, and gives rise to the affection known by the name of Empyema, which is much more frequent than supposed by the older writers, and of which we may take a future opportunity of communicating to our readers a very instructive series, which we have had an opportunity of observing accurately.

Percussion assists us in the diagnosis of pleurisy, both by the tenderness of the part inflamed, and by the want of resonance if the effusion be at all considerable. Mediate auscultation, by means of the stethoscope, furnishes us with characters which enable us to determine not merely the existence of the effusion, but its quantity, increase and decrease. The characters of pleurisy are, the total absence or great diminution of the respiratory murmur, and the appearance, disappearance, and return of that peculiar species of pectoriloquism called Egophonism. It does not take place in empyema.

Contracted Chest.—In some cases of pleurisy, the absorption of the effused fluid is not attended by a return of the natural dilatation of the lungs. It can affect only one side of the chest, and it occurs after chronic pleurisy, or acute pleurisy become chronic. The subjects of this morbid alteration are distinguishable even by their external shape and their gait. They lean to the affected side, which is narrower and shorter than the opposite side. The ribs are closer to one another. The shoulder is lower, and the muscles, especially the pectoral, are only half the size of those on the opposite side. This change of appearance is so striking, that Laennec has given plates to represent it; and we can vouch for their characteristic accuracy.

For many excellent observations on this subject, we must refer to the work itself. After the absorption of the effused fluid is completed, sonorousness on percussion, and the respiratory murmur, return but incompletely.

Gangrene of the Pleura is exceedingly rare; always of very small extent; scarcely ever a primary affection, or a termination of acute inflammation. It occasionally supervenes to chronic pleurisy, but most commonly is the consequence of the bursting of a gangrenous abscess of the lungs into the pleura.

A remarkable example of this kind occurred in the Clinical Ward of this place, in a case which would have been better understood had Laennec's observation been then known in this country.

The lungs may be more or less generally or partially removed from their natural state of contiguity with the parietes of the thorax, by fluid or air being contained within what is called the cavity of the pleura. When the fluid is mere serum, it constitutes the disease called Hydrothorax; when pus, it is Empyema; when blood, Haemathorax; and when air, Pneumo-thorax.

Hydrothorax is either idiopathic or symptomatic. The former is very rare, and the latter very frequent. Idiopathic hydrothorax commonly exists only on one side. Its anatomical character is simply an accumulation of serum in the cavity of the apparently healthy pleura, the lung being compressed towards the mediastinum, flaccid and destitute of air, as in cases of pleuritic effusion. When the effusion is very great, the affected side is evidently larger than the other. The disease may exist in a very great degree without dropsy in any other part of the body. Such is the description of the anatomical character of those cases which alone Laennec admits to be instances of idiopathic hydrothorax; and from the disease commonly occurring in one side only of the chest, we must conclude that it arises from an affection of the pleura of one side only; and therefore, that it does not depend upon a diseased state of the exhalents or absorbents generally. But the only local affection which is accompanied by effusion is inflammation, or an action of the vessels of the part approaching to inflammation; and to this cause we have no hesitation in ascribing the idiopathic hydrothorax of Laennec. Indeed he seems only to have been prevented from advancing the same opinion, by his being unable to relinquish the old hypothesis of dropsies depending upon debility; for he candidly admits, that whatever may be the difference in general between a dropsy and an inflammation, there can be no doubt that these two affections, so opposite, he says, in their extreme degrees, are nevertheless often very nearly allied in their slighter shades. We frequently find, he adds, albuminous concretions amid the serum of ascites, and purely serous effusions in inflammatory affections of the chest. Laennec has given no cases of idiopathic hydrothorax; but we have reason to believe, that when the disease exists, but not in a great degree, it is not attended with many of the symptoms commonly enumerated in the description of hydrothorax, by Cullen for example. The *decubitus difficilis*, and *subita et spontanea ex somno cum palpitatione excitatio*, indicate the existence of an organic affection of the heart or other viscus, and do not depend upon a mere accumulation of serum in a thoracic cavity in a moderate degree.

Symptomatic hydrothorax is very frequent, and may accompany almost every disease, acute or chronic, general or local. But we think that Laennec is rather vague in his ideas of the cases referable to this disease; at least we are not inclined to admit the effusion which takes place a few moments, or only a short time before death, as instances of hydrothorax at all. Hydrothorax is often a symptom of some organic affection of the pleura itself; 1*st*, of medullary tumours. They are few in number, vary in size, but rarely exceed that of an almond, adhere strongly to the surface, and have the usual characters of soft cancer. The pleura, to some distance, commonly is red, and sometimes streaked with black; 2*dly*, of miliary tubercles, which are seated rather in a false membrane covering the pleura, than in the serous membrane itself; and which inflame, but never suppurate or soften; 3*dly*, of small white, opaque, flattened, contiguous granulations. The two last are very rare; and the effusion in all, which is constant, is commonly sanguineous.

Hæmathorax is used by Laennec to express the effusion of blood into the cavity of the pleura, without any solution of continuity; a rare occurrence. He considers it as analogous to the hemorrhagy of other organs, and as depending on a hemorrhagic diathesis. When the blood is not quickly absorbed, it is sometimes decomposed; and an aëriform fluid is disengaged, forming a variety of pneumo-thorax. We examined a case of pneumo-thorax in a young man, who was first affected by profuse hæmoptysis, threatening immediate dissolution, then by the symptoms of phthisis, and, for a few days before death, racking pains of the right hypochondrium and loin, and total inability to turn to that side, on which he previously preferred to lie. On examination after death, the right side of the chest was distended, and remarkably sonorous; and, on opening it, the air rushed forcibly out, and the lung was condensed into a small space, and bound down by a false membrane. There was no liquid in the large space between the lung and ribs; but the whole pleura was lined by freshly effused coagulable lymph. We may explain this case by supposing the effusion of blood, the production of air by its decomposition, the absorption of the fluid part, and the attachment of the fibrine to the pleura.

Empyema differs from hydrothorax only in the fluid effused containing coagulable lymph in a particled form, or in flakes and shreds; and, as Laennec has well observed, there are cases of every description intermediate between the most translucent serum to thick puriform fluid. When the coagulable portion is not very abundant, it is apt to be overlooked, because the fluid, by rest, readily separates, and the clear supernatant fluid alone is seen, unless the sediment be disturbed. As hectic fever is not a constant symptom of empyema, it is not easily distinguished during the life of the patient, scarcely ever by the symptoms, and rarely by the progress, of the disease.

Fluid effusion of any kind, and its extent, are easily recognised by percussion, by the dull sound emitted from the part in which the fluid is at the time, contrasted with the sonorousness of the part over the lungs. By altering the position of the patient, when there are no adhesions, different portions of the chest become alternately sonorous or dull, as the fluid gravitates to the lower part of the cavity; but when there are adhesions, those parts of the parietes to which portions of healthy lung adhere remain sonorous in every posture, and the intermediate space dull. The same observation applies to the murmur of respiration, which is only heard by the stethoscope, where lungs permeable to air are in contact with the parietes; but is not heard where fluid is next the pleura costalis.

Pneumo-thorax, or the effusion of a gaseous fluid into the cavity of the pleura, occurs more frequently than is generally known, although it was first described in 1803 as a peculiar disease by M. Itard, M. D., in his inaugural dissertation. It is commonly accompanied by fluid effusion; and it is in those cases only, where there is both air and fluid contained in the same cavity of the thorax, that the sound of water fluctuating in the chest can be heard on agitating the body of the patient,—a symptom which has been doubted, but of which a remarkable and unequivocal example occurred lately in this hospital, the particulars of which, and some other cases of pneumo-thorax, we shall take another opportunity of communicating.

Of this very singular affection, the common symptoms are not perfectly known. The relative proportion of air and fluid modify the position in which the patient lies most easily. When much air is suddenly evolved, the patient cannot lie on the affected side; and there is commonly protuberance of the hypochondrium on that side, by the depression of the diaphragm and abdominal viscera. The signs afforded by percussion are the reverse of those where fluid is effused, for the portion of the chest where the air exists is much more sonorous than natural; but there is no respiratory murmur heard by the stethoscope. Its existence after death has been often overlooked, by not suspecting its existence. It is ascertained by the distension of one side of the thorax and one hypochondrium, and by opening the abdomen and examining the state of the diaphragm, before the costal pleura be wounded. The diaphragm will be found depressed, or even concave downwards, on that side where air is contained, and will feel like a bladder full of air; but the existence of pneumothorax is rendered certain, if, on puncturing the pleura costalis, the diaphragm ascend, and air rush out by the wound.

Solid effusions into the cavity of the pleura are exceedingly rare; but this membrane seems sometimes to secrete tuberculous or cancerous matter in place of its natural fluid, and in such quantity as to compress the lungs of one side upon the spine. At first sight, the disease appears to be seated in the pleura, or in the lung itself; but, upon examination, it will be found to be on the outside (free surface) of the pleura. On the adhering surface of the pleura, fibro-cartilaginous incrustations are sometimes found, and are commonly mistaken for a cartilaginous thickening of the pleura itself. We met with a case of this kind so considerable as to cause a marked protrusion of the right hypochondrium, and which was mistaken for chronic enlargement of the liver. It was situated between the pleura and false ribs, from which, in some places, it could not be removed without the assistance of the knife.

Having completed our sketch of the morbid alterations peculiar to the membranes lining and covering the lungs, we now proceed to notice the morbid alterations of the intervening parenchyme, and those affecting the whole substance. The most important of these diseases, or at least that in which proper treatment is of most avail, is inflammation, the *Pneumonia peripneumonia* of authors. Well understood as this very frequent disease is generally considered to be, it has never before been so accurately described, because preceding observers did not sufficiently distinguish it from other affections of the lungs, and have thus blended with its pathognomonic characters, some of the phenomena of other diseases.

Laennec considers peripneumony as presenting, in an anatomical point of view, three varieties.

"In the first, the lung is of a livid or violet colour externally, is much firmer internally, and heavier than in its healthy state. It is still crepitous, but much less so than a sound lung, and, on pressing it between the fingers, we perceive that it is injected by a liquid. When cut into, it appears of a livid red, is quite injected by a frothy serous fluid, more or less sanguinolent, which flows from it abundantly. We can still, however, discover very clearly the natural alveolar and spongy texture of the viscus. This is the condition of lung entitled by M. Bayle, *obstruction* (engoument.)

"In the second variety, the lung has entirely lost its crepitous feel under the finger, and has acquired a consistence and weight altogether resembling those of liver. From this circumstance, modern anatomists have named this condition of the organ *Hepatisation.*

"In the third variety or degree of inflammation, the pulmonary tissue has the same consistence and granular texture as we have just described; but it is of a yellowish pale or straw colour, and discharges, from the cut surfaces, in considerable quantity, an opaque, yellowish, viscid matter, which is evidently purulent, but with a heavy smell, which is not nearly so disagreeable as that of pus in an open wound. This is, properly speaking, suppuration of the substance of the lungs.

"In several hundreds of cases of peripneumony, wherein I have examined the lungs after death, I have met with collections of pus in the inflamed organ, not more than five or six times.

"The three varieties of inflammation above described, are very commonly conjoined in different ways. Very commonly one lung is inflamed throughout in the third degree, while the other exhibits only some spots in the first or second degree. Sometimes the three varieties exist in the same lung, dividing it into different zones, which are either very strikingly contrasted, or shaded into one another by insensible gradations.

"The lower parts of the lungs are those most commonly affected in peripneumony; and when the disease extends to the whole of them, it is in this part that it almost always commences.

"When all the varieties of peripneumony exist in the same lung, the greatest degree generally is observed in the same inferior portion. It is extremely rare to find the inflammation confined to the superior lobe; and it is nearly equally so to find it seated in the centre of the lungs, while the surface throughout retains its crepitous character.

"We never find the whole of both lungs inflamed in the third, or even in the second degree; but it is not uncommon to find one whole lung, and half the other, entirely impermeable to the air.

"In other cases, on the contrary, death takes place before the fourth part of the lungs is affected by the inflammation.

"Peripneumony, even when it has reached the third stage, or that of purulent deposition, may still admit of cure without disorganization of the pulmonary tissue." pp. 44—50.

The appearance of the sputum is a pathognomic symptom of peripneumony, because it is observed in no other disease.

"The sputa are white, slightly yellowish, or greenish, somewhat diaphanous, and intermixed with bubbles of air, which are retained by its extreme tenacity. This tenacity is so great, that we may often reverse the vessel containing the sputa, and even retain it in this position for a long time, without being able to detach them from its sides." pp. 50, 51.

"The percussion of the chest, according to the method of Auenbrugger, is a much surer means of ascertaining this disease, in all its stages, than the examination of the external symptoms only. The little time and trouble required by it, and the certainty of its results, would exclude the necessity of any other mode of exploration, if it were applicable in all cases." p. 312.

The exploration by the cylinder is still more satisfactory.

"In the first degree of peripneumony, the respiratory murmur is still heard in the part affected, whether percussion affords any sensible alteration of sound or not; and it is, further, accompanied by that species of *rattle* to which I give the name of *crepitous rattle*, and which is the pathognomonic sign of this first degree of Peripneumony. The only other diseases in which this species of rattle is found, are œdema of the lungs and hæmoptysis. The second and third varieties of peripneumony are distinguished by the total absence of the respiratory murmur. On the patient making a deep inspiration, we see and feel the motion of the thoracic parietes, but we hear no sound whatever: Sometimes, however, in place of the natural sound of respiration, we hear the *mucous rattle*. This is particularly the case when a pulmonary catarrh is conjoined with the peripneumony, or when the viscid mucous sputa of the early stage are changed, towards its latter stage, into a thicker and more opaque expectoration. We commonly observe, also, in all the varieties of the disease, but especially in the two first, that the respiration acquires the character which we have named *puerile*, in the parts of the lung which have remained sound.

"When peripneumony terminates favourably, the cylinder becomes a sure measure of the progress of the cure. Before percussion can inform us of any diminution of the pulmonary engorgement, the cylinder enables us to distinguish a slight murmur during expiration." pp. 312, 313.

Gangrene of the Lungs is either diffuse or circumscribed.

The former variety is one of the rarest of organic diseases, and the latter is very uncommon. It may have its seat in any part of the organ, and it is always very limited in extent. It may be observed in three states; of gangrenous eschar; deliquescent sphacelus; or gangrenous excavations. The sputa are of a grey, or greenish colour, and of a gangrenous fetor, and followed by the expectoration of a purulent fluid, of a grey or greenish yellow colour; and there are sometimes very copious hæmorrhagies from the lungs.

"Sometimes the eschar makes its way into the cavity of the pleura, and gives rise to a species of pleurisy usually accompanied by the extrication of air in that cavity. This seems in some cases to arise from the process of putridity alone, but, in others, it is evidently assisted by the access of the external air through the bronchia." p. 55.

A case exactly of the latter description occurred in our own practice.

Hæmoptysis, in a slight degree, depends upon some functional derangement of the bronchial membrane, by which it furnishes blood instead of its natural mucus. This takes place in pulmonary catarrh, peripneumony, and the earlier stages of tubercular phthsis; but when the expectoration of blood is copious and alarming, except those few cases in which it arises from the bursting of aneurism, or the rupture of a considerable bloodvessel into a tuberculous excavation, it depends upon a peculiar morbid change of a portion of the lungs, first accurately described by Laennec, and to which, from its similarity to the same condition in the brain, where it is the cause of apoplexy, he has given the otherwise inappropriate name of *pulmonary apoplexy*. We have no room for the passages we had marked for quotation upon this interesting subject.

Œdema of the lungs attracted the notice of Albertini and Barrere. It is rarely idiopathic and primitive. It commonly supervenes with other dropsies in cachectic subjects, towards the termination of tedious fevers, or organic affections, particularly of the heart. Peripneumony, terminated by resolution, seems to leave after it a great disposition to infiltration into the pulmonary tissue; and chronic catarrh predisposes to it. Perhaps the orthopnœa, which carries off children after measles, depends upon œdema of the lungs? When the œdema of the lungs is universal, and of some standing, the lungs do not subside on opening the thorax. They are of a pale gray colour, and the vessels seem to contain less blood than in their natural state; and there is less of that congestion of blood in the back part, which is seen in most bodies. The impression made upon them by the finger, is also more durable than natural; and they are more dense and heavy, but nearly as crepitating. On cutting into them, there exudes an abundance of fluid, almost colourless, or of a very pale yellow, transparent, and scarcely frothy. The spongy texture of the lungs seems to remain unaltered, especially in the interior, and when a certain quantity of fluid has escaped from the incisions; for as long as the lung is entire, it is difficult to distinguish the air-cells, because the fluid which fills them diminishes their own transparency, and the opacity of their septa. In œdematous lungs there are often some parts inflamed, and the passage of the one to the other is gradual,—a fact particularly worthy of notice. The characters of œdema pulmonum are very equivocal. Besides the dropsical habit of the patient, the difficulty of respiration, a slight cough, and a more or less abundant expectoration, almost of water, are the signs which cause it to be suspected.

The last kind of organic affection of the lungs includes the accidental production of substances, foreign to their natural texture; tubercles, fibrous, cartilaginous, bony or osteo-cretaceous tumours, medullary tumours, melanosis, hydatids, cysts. It may be remarked, that the mechanical effect of these various productions on the surrounding tissue of the lungs, is comparatively very little. Thus, around tumours the size of the fist, the lung is found quite crepitous; while the effusion of a few ounces of serum always produces upon some part of it a degree of compression sufficient to render it impermeable to the inspired air, and to impart to it a certain degree of flaccidity, noticed in pleurisy.

Tubercle is the most important of the accidental productions in the lungs, on account of its being the most frequent and most destructive of human life. Their existence constitutes the true anatomical character of consumption. Notwithstanding the preceding labours of Stark, Baillie and Bayle, Laennec has been able to increase our knowledge of their nature and progress.

In our volume for 1816, we gave a pretty full account of M. Bayle's observations, and shall therefore content ourselves with a very short analysis of the corrections by M. Laennec. M. Laennec does not admit of Bayle's miliary or granular phthisis as different from tuberculous, any more than green is different from ripe fruit. All tubercles pass through three distinct states or stages. In the first, they are *miliary*, consisting of greyish semitransparent grains. In the second, by the deposition around them of additional tuberculous matter, they form solid and pellucid masses, with minute yellow points dispersed through them, which, increasing in size and number, at length convert the whole diseased space into a tuberculous mass of the kind, named *crude* or *immature*. After a very uncertain time, they become first softened and finally liquified, the change proceeding from the centre to the circumference. In this stage, the tuberculous matter is of two kinds, the one resembling healthy, and the other scrophulous pus. When the softening is completed, the fluid finds its way into some of the bronchial tubes, and is expectorated, leaving a cavity commonly surrounded by tubercles in various stages of progress, which, as they soften, successively empty themselves through it, and gradually form irregular and cavernous excavations, sometimes extending from one extremity of the lung to the other. These excavations are frequently crossed by bands, often mistaken for blood-vessels. As their contents are discharged, the walls of the excavation become generally covered with a false membrane, more or less intimately connected with it; and if the disease remain long stationary, a semicartilaginous membrane is gradually developed beneath this serum, to form one continuous surface with the internal coat of the bronchial tubes which open into it. Very rarely this semicartilaginous membrane is perceptible before the softening of the tubercle, forming the *encysted tubercle* of Bayle. This is the regular progress of tubercles; for the anomalous modes of their development, we must refer to our author.

The development of tubercles is not confined to the parenchymatous texture of the lungs, even in consumptive patients, but occurs in the following situations, enumerated in the order of the frequency of their being affected—the bronchial, mediastinal, cervical, and mesenteric glands; other glands; liver; prostate; peritoneum; pleura; epididymis, *vasa deferentia*, cuticle, spleen, heart, uterus, brain, cerebellum, cranial bones, bodies of the vertebræ, scirrhous tumours, and, least frequently of all, in the muscles of voluntary motion.

The result of M. Bayle's researches, and of those of other modern pathologists, led to the disheartening conclusion that turbercular affections, and tubercular phthisis in particular, were absolutely incurable.

"The observations contained in the treatise of M. Bayle, as well as the remarks made in the preceding chapter, on the development of tubercles, sufficiently prove the idea of the cure of consumption in its early stage to be perfectly illusive. Tubercles tend essentially to increase in size, and to become soft. Nature and art may retard or even arrest their progress, but neither can reverse it. But while I admit the incurability of consumption in the early stages, I am convinced, from a great number of facts, that, in some rare cases, the disease is curable in the latter stages, that is, *after* the softening of the tubercles, and the formation of an ulcerous excavation.

"Occasionally, while examining the lungs of subjects that had suffered from chronic catarrh, we find irregular cavities lined by a semicartilaginous membrane in all respects similar to that described above; and these cavities accord perfectly with the tuberculous exulcerations, except that they are empty. In carefully investigating the history of such subjects, we find that they all refer the origin of their catarrh to a violent anterior disease which bore the character of consumption so strongly as to make their case at the time be considered desperate.

"On the other hand, in subjects dead of consumption, whose disease had lasted very long, several years for instance, we very commonly find similar excavations entirely lined by semi-cartilaginous membrane, and free, or almost free, from tuberculous matter. In the same lung we shall also find excavations having the cartilaginous membrane much softer and less complete, and still containing a considerable quantity of tuberculous matter; while other excavations are observed almost filled with the puriform tuberculous fluid, and with scarcely any of the cartilaginous lining. In conjunction with all these, we almost always find tubercles in various degrees of maturation, and even in their miliary and semitransparent stage. This reunion of tubercles in all their various degrees of development, considered in conjunction with the slow progress of the disease, decidedly proves, in my opinion, that the tubercles have been developed at different periods; and that the oldest—those, namely, which have given rise to the empty ulcerous cavities lined by the cartilaginous membrane—have originated, in many cases, several years before the others.

"The formation of this semi-cartilaginous membrane on the surface of tuberculous excavations, must be considered, in my opinion, as a curative effort of nature. When completely formed, it constitutes a sort of internal cicatrix analogous to a fistula, and is, in many cases, not more injurious to health than this species of morbid affection. All the persons whose cases I noted above died of diseases not referrible to the pulmonary organs. They had all lived a greater or less number of years in a very supportable state of health, being merely subject to a chronic catarrh. Some indeed had more or less of dyspnœa, but without any fever or emaciation." pp. 17—19.

We have quoted this passage at length, because it explains the singular recoveries which have sometimes taken place after phthisis seemed to be confirmed, better than by supposing that we had erred in our diagonis; and it is no slight obligation that the profession, we had almost said humanity, owes to M. Laennec, that by rendering our diagnosis of confirmed consumption almost certain, we acquire the knowledge of recoveries from this state actually taking place, less unfrequently than we could believe from mere inspection after death.

Percussion gives us scarcely any assistance in the diagnosis of tubercles in the lungs, as these remain sufficiently sonorous, unless they be almost entirely occupied by the deposition of tubercular matter, and then we cannot distinguish it from hepatisation; but the discovery of the phenomena of pectoriloquism has rendered the diagnosis, after a certain stage, almost certain.

"In the early stage of Phthisis, neither *percussion* of the chest, nor *auscultation* in any of its forms, affords any means of detecting the disease in ordinary circumstances. When, as sometimes happens, especially in the superior lobes, the tubercles are congregated in great numbers in one spot, so as to form masses of considerable size,—in this case the respiration is inaudible, and percussion elicits a dull sound. This, however, must be considered as a very rare case.

"As long as the expectoration retains either of the characters ascribed to the first stage of the disease, it is useless to look for the phenomenon of pectoriloquism; for the tubercles being still unsoftened, it cannot exist. But when the expectoration assumes the characters of the second stage, if we have recourse to the stethoscope at this period, we shall discover incipient pectoriloquism. This will daily become more evident; and sometimes, even at the end of a few hours, will be complete. This is especially the case where the yellow purulent expectoration has existed in great quantity from the very moment of its first appearance.

The other accidental productions in the lungs, besides tubercles, are cysts, hydatids, osseous concretions, melanosis, and medullary tumour. We have room only for some account of melanosis, as it is less understood than the others, and has been better described by Laennec than any of his predecessors.

Melanosis occurs in various textures and organs; and in fact, owing to its black colour, resembling the black matter natural to the lungs, is more difficultly recognised there than in any other situation.

"Melanotic productions, in their early or crude state, possess a consistence equal to that of the lymphatic glands, and a homogeneous and somewhat humid composition; they are opaque, and, in structure, very much resemble the bronchial glands. When they begin to soften, a minute portion of fluid can be expressed from them, of a thin reddish character, intermixed with small blackish portions, which is sometimes firm, sometimes friable, but which, even when friable, conveys to the touch an impression of flaccidity. In a more advanced stage, these portions first, and subsequently the whole mass in which they are contained, become quite friable, and are soon converted into a black paste.

"Melanosis may exist in four different forms, viz.; 1*st*, encysted; 2*d*, non-encysted; 3*d*, impregnating, or infiltrated into the natural substance of an organ; and, 4*th*, deposited on the surface of an organ." p. 125.

Laennec considers melanosis to be one of the rarest species of cancer, and to be very seldom met with in the lungs. M. Bayle, who represented it as more common, was, he thinks, deceived, by confounding with melanosis the natural black pulmonary matter; and he confesses that he is not sure if it be possible to distinguish a melanotic mass taken from the liver, or any other organ, from a bronchial gland of a perfectly black colour, such as they are often found in perfectly healthy lungs.

Notwithstanding its resemblance to the natural substance, melanosis is evidently a morbid and very deleterious production. In the lungs, its local effects are dyspnœa, and cough which is often dry, but sometimes attended by mucous expectoration, intermixed with some puriform sputa. Its most constant constitutional effects are, the gradual diminution of the vital powers and diminished nutrition, giving rise to hydropic affections. It is not attended with any well marked fever.

We are obliged to omit many excellent pathological and diagnostic observations, which we had noted for insertion; and, for the present, we must pass over, altogether unnoticed, the second part of M. Laennec's work on the Morbid Anatomy of the Heart, which is not less interesting than that which has occupied so many of our pages, as we mean to take an early opportunity of giving a very comprehensive view of the subject.

No apology is necessary for the length of this article, for the diseases of the lungs are among the most important and hitherto obscure of the human body; and the zeal, knowledge, and opportunities of the author, have enabled him to produce a work of the very highest description. The frequent quotations we have made will enable our readers to judge of the style of the translation. We can bear ample testimony to its accuracy, and to the intelligence and skill with which Dr Forbes has abridged some parts, so as to condense into one volume the whole substance of Laennec's work. Dr Forbes has added some notes, chiefly intended to do justice to some writers of our own country, in regard to some observations claimed as original by the French pathologists.

To conclude, this work of Laennec's is not to be skimmed over. It must be studied. To those who are zealous in the progress of their profession, we shall address the old adage, *Diurna versate manu, versate nocturna.*

III.

Observations on those Diseases of Females which are attended by Discharges. Illustrated by Copperplates of the Diseases. By CHARLES MANSFIELD CLARKE, Member of the Royal College of Surgeons, London. Part II. London, printed for Longman, Hurst, Rees, Orme & Brown, Paternoster-row. 1821.

THE pathological labours of Mr Clarke are of the most useful and practical tendency; and the most predominant feeling which the perusal of this second part has excited in our minds, is that of wonder at the facility with which practitioners could decide on the nature of those affections to which the generative system of the female is liable, and could recommend, in the most random manner, a treatment quite empirical in diseases often different, always of an unknown nature. Some apology for the ignorance in which the profession are on this subject, may indeed be found in the delicacy of the sex, which not only often precludes examination during life, but induces them, even under long continued, and perhaps acute suffering, to observe the most circumspect silence on the nature or situation of their complaints. As the elucidation of these obscure, and sometimes intractable diseases, is practicable only with those whose opportunities are favourable, it is a matter not of the smallest importance that Mr Clarke, to whom the opportunities have occurred, is endowed with the inclination to render them useful to the profession, by investigating the subject. We hasten to communicate the result of his researches, which will afford the best means of judging of the manner in which he has conducted them.

It will be remembered, that Mr Clarke referred all the varieties of morbid vaginal discharge to the following heads;*—*1st*, Transparent mucous discharge; *2d*, White mucous discharge; *3d*, Watery discharge; *4th*, Purulent discharge; *5th*, Sanguineous discharge. As the diseases in which the first of these discharges is observed were fully examined in the course of his former volume, our author has, in the present division of his work, confined himself to the consideration of the four latter ones. Each of them, though to be viewed merely as a symptom of some morbid action which is going on in the uterus, vagina, or both, is nevertheless of great use in enabling the surgeon, along with other morbid phenomena, to ascertain and distinguish the various affections incidental to these organs.

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* Vol. XII. p. 211. Ed. Med. & Surg. Journ.

" The os externum," he observes, " is an opening out of which all discharges from the vagina must flow; but their sources are as various as their peculiarities of appearance." While, therefore, the practical observer must examine and discriminate these discharges with the utmost care, he must also look to the other concomitant symptoms, in order to form an accurate and just opinion of the malady of his patient.

" 1. The white mucous discharge is opaque, of a perfectly white colour; it resembles, in consistence, a mixture of starch and water made without heat, or thin cream: it is easily washed from the finger after an examination; and it is capable of being diffused through water, rendering it turbid." p. 5.

a. It is of considerable consequence in the correct diagnosis of the affection which gives rise to this discharge, to attend to the properties thus characterised; and, with this view, the investigation must be made when the patient has continued for some time without disturbing the parts; for, unless this precaution be taken, the practitioner may confound it with the ordinary mucus of the vagina, which, though transparent in the natural state, yet, when secreted in sufficient quantity to run down the labia, becomes, in consequence of the motion in the act of walking, white and opaque,—a change which our author attributes to admixture with air. This mucous discharge is in some instances thicker than cream, and as tenacious as melted glue; but in this state it does not flow spontaneously, and is generally discharged only when the contents of the rectum are expelled,—or continues in the vagina, until it is attenuated and rendered more fluid by the mucus of that canal. There is reason to believe that this mixture always takes place in women of strong passions, in whom these discharges have a milky hue.

Mr Clarke thinks it certain that the pathological state on which this discharge of white mucus depends, is an inflammatory condition of the cervix of the uterus, and the mucous glands with which this part is furnished. Our author was not premature in forming this conclusion; and it was only after he had met with a considerable number of examples, in which he could compare and examine the symptoms, that he could satisfy himself as to the nature of the disease. In all of these, in whatever manner the morbid phenomena might vary, he uniformly recognised a tenderness of the cervix of the uterus, and even considerable pain in certain circumstances. It does not appear that this is by any means an acute inflammatory disease, but rather a peculiarly irritable condition of the mucous membrane, which extends from the neck of the uterus through the *os tincæ* to the superior extremity of the vagina, and which then becomes the source of the secretion, by which our author has characterised the disease. He considers it analogous to those inflammatory states which are observed in the lymphatic glands of subjects in whom the circulation is unequally distributed, and thinks that the glandular structure of the *cervix uteri* will readily predispose it to a similar state of its bloodvessels. We are not certain how far this analogy of lymphatic glands, and the follicles of a mucous membrane, is borne out either by strict anatomy, or by physiological properties; for it is certain that the structure of these mucous follicles is so minute, that it is quite as easy to maintain as to deny their resemblance in this respect to the lymphatic glands; but this analogy is by no means necessary to prove that the diseased *cervix uteri* occurs in subjects of the same appearance and temperament.

Our author has remarked, that, in the greater number of cases, few symptoms are produced; and, to a certain extent, we are disposed to admit the truth of the observation. But we would suggest,—that, as the symptoms of a disease are merely certain morbid phenomena occurring in various regions of the body, in consequence of the unhealthy condition of a certain tissue or organ, and as these phenomena vary in intensity, according to the circumstances in which the patient may be placed, and according to the means employed to diminish or alleviate the sensations to which these phenomena give rise, no correct conclusion concerning the production of symptoms, as they are named, can be formed. We have known, in the very disease of which Mr Clarke asserts this absence of symptoms, every variety of sensation, from perfect ease and indolence, up to the most distressing severity. The pain of the part affected is not always felt; and unless the local circulation be affected by riding, dancing, violent walking, the menstrual function, or the natural consequences of marriage, the patient seldom experiences much inconvenience. If, however, she be exposed to the operation of causes of this kind, especially when aggravated by a constipated state of the bowels, much uneasiness is felt in the lower part of the abdomen, and in the site of the cervix, which amounts to great pain when the fæces are voided, or when the parts are exposed to any other straining pressure; and a sensation of uneasiness, weakness and pain, is felt in the lumbar region, which is generally so severe, that the patient cannot retain her person in the sitting position. The bladder, perhaps its neck more especially, likewise partakes in the uneasy sensations; and it is by no means uncommon to find the patient complaining of strangury, and even retention of urine. The menstrual function is, according to our author, seldom affected; but we think we have seen instances, in which this discharge was either entirely suppressed at the time when the cervix uteri was beginning to be inflamed, or gave place to an increased discharge of the white mucous secretion which arose from the inflamed os tincæ; and Mr Clarke has, in complete forgetfulness of his general descriptions, actually related a case in which the symptoms became troublesome only at the usual monthly periods, and were attended with a similar change in the qualities of the evacuation.

Our author has remarked constitutional symptoms very rarely, and mentions only a single case in which they appeared.

The view which Mr Clarke has given of the nature of this disease, will furnish the most rational and probable method of cure; and while the practitioner will learn, from it, the cause of the failure of astringent and tonic applications, he will perceive what measures are likely to moderate the diseased action, and alleviate the uneasy sensations which are its immediate effects.

"In ordinary cases, the most successful mode of treatment is to take away some blood, either by cupping, or by leeches applied to the groins, or to the back; and it may be necessary to repeat the local bloodletting several times. If symptomatic fever should be present, it will be prudent to open a large vessel; but this is seldom requisite; and all useful purposes are answered by local blood-letting. The hip-bath proves a useful remedy, and the patient may sit in it twice a day, the water being heated to about 90 degrees. Where the hip-bath cannot be conveniently procured, fomentations of warm water, or of decoctum papaveris, to the back or to the abdomen, will be found serviceable; and even during their application, the patient is frequently made much more comfortable. Tepid water, thrown into the vagina with a syringe, constitutes a direct fomentation to the part affected, and it may be recommended with advantage.

"It is very useful to keep the bowels in a relaxed state; and, for this purpose, small doses of sulphate of magnesia will answer exceedingly well in plethoric habits, and it may be exhibited in any agreeable vehicle. In languid habits, it may be advisable to substitute expressed oil in its stead." pp. 24–26.

Strangury is to be relieved by the exhibition of laudanum and mucilaginous drinks; and 'in all cases where the bladder cannot expel its own contents, and when distension of its coats is produced, recourse should be had to the use of the catheter. It is usual with some persons to employ diuretics in this case, and to content themselves with exhibiting nitric æther, and placing their patient over the steam of warm water; but nothing can excuse such a useless practice; and no professional man is warranted in leaving such cases, when he can draw off the urine,—an operation which, if properly performed, is attended with neither pain, difficulty, nor exposure of the person." pp. 27, 28.

β. As the inflammatory state of the cervix is liable to be confounded with inflammation of the substance of the unimpregnated uterus, our author has taken considerable pains to point out the difference between these two diseases.

"Inflammation of the substance of the uterus, is not an unfrequent disease; it is not attended by symptoms so acute as might be expected, when the unyielding texture of the muscular fibres of the uterus is considered. In the violence of the pain, there appears to be a great difference between the inflammation of this organ in its impregnated state, or soon after delivery, and in its usual *un*impregnated state. The complaint is more frequently called into action by local violence than by any other cause: it is not an uncommon consequence of marriage. The application of cold may excite it; but the viscera of the abdominal cavity are much more likely to suffer from this cause than the uterus. The inflammation of the substance of the unimpregnated uterus is attended by a constant uneasiness referred to the pelvis, and this gradually increases, seldom becoming intensely violent, but greatly interfering with the comfort of the patient, who complains of pain sometimes at the bottom of the abdomen, and sometimes in the back. Superadded to the permanent pain, violent pains occur by paroxysms, with irregular intervals: these are of short duration. It appears that these pains are present whenever inflammation attacks muscular parts, or parts in the immediate neighbourhood of muscular fibres. In inflammation of the stomach, they are met with, sometimes causing a sudden pumping up of its contents. In inflammation of the bladder, they are also present, causing one of the great annoyances of that disease—strangury." pp. 29—31.

In the treatment of this disease, Mr Clarke recommends local rather than general blood-letting, which seldom produces relief adequate to the expectations of the prescriber. The hip-bath is a useful resource, both during the bleeding and after it has ceased, and its effects are often promoted by the frequent employment of fomentations of laudanum and decoction of chamomile in due proportions. If the symptoms do not yield to these remedies, the patient should be kept in bed, and small doses of antimony may be given in a saline draught, once in four or six hours, with three or four drops of laudanum, or ʒi. of the poppy syrup. The judicious employment of cathartics ought never to be omitted.

γ. The connexion between inflammation of the substance of the unimpregnated uterus, and irregular, difficult, or suppressed menstruation, is so uniform, that no case of amenorrhœa ought to be treated without a previous inquiry, not only into the state of the general health, but also into that of the uterine system. Amenorrhœa, which has been too often represented as a particular disease by nosographical authors, is never to be viewed in any other light than as a symptom, or an effect of the unsound state, either of the general health, or of some local disease. The rational practitioner, who is not satisfied with a superficial glance of the most obvious features of a disease, will not in this manner mistake the effect for the cause, but will, after a proper and deliberate investigation of the circumstances under which the amenorrhœa has occurred, form his opinion, and direct his measures accordingly. Whether the suspension of this function arise from the plethoric condition produced by luxurious and inactive habits,—or from the asthenic state, which is generated by confinement in impure air, with bad or innutritious food,—or from the changes consequent on a disease of some important organ,—or from the state of the uterus itself; he will attempt, in the first instance, to remove the cause which produced the amenorrhœa, and not, by the injudicious exhibition of the remedies most unwisely named emmenagogues, either lose time in unseasonable means, or do injury by the use of improper ones. On these various causes of amenorrhœa, and the treatment appropriated to each, Mr C. has made a number of very judicious remarks, although his desire to illustrate has often led him away from the subject under consideration. We would recommend the whole to the attentive perusal of our readers.

2. The second kind of discharge which our author has noticed in the work before us, resembles clear water in being perfectly colourless, and in containing little or no glutinous matter. It is a prominent and uniform feature in three different diseases of the female organs,—1*st*, in the cauliflower excrescence of the *os uteri*; 2*d*, in the hydatids of the uterus; 3d, in the oozing excrescence of the labia.

a. Of these, the first is the most important and interesting in its pathological history, and in the effects which it produces on the general health. The peculiar situation of this tumour, which can never be traced into the uterus, is determined, according to our author, by the organic properties of the mouth of the womb, which, unlike the glandular structure of the cervix, more nearly resembles the simple villous membrane of the vagina, and thereby, in its morbid tendencies, differs somewhat from the cervix and substance of the organ. The name of this tumour expresses its appearance with great fidelity; it is exceedingly like 'a portion of the upper surface of a 'cauliflower or a head of brocoli.' Its surface is granulated, and consists of many small projections, which may be picked from the surface as the granules may be detached from the vegetable; and in firmness they are said to agree, the granules of one place being large and irregular, those of another small and uniform.

"A membrane, very fine in its texture, is spread over the surface of the tumour, and from that membrane is poured out that aqueous secretion which characterizes, in a marked manner, this disease."

The tumour is generally beyond the reach of the eye; but in three or four cases, in which it was protruded between the labia, the author found it of a bright flesh colour. The slightest injury, even the most gentle management in the course of examination, is liable to produce a rupture of the membrane, and a copious discharge of blood, which has the ordinary appearance of that which is found in the arterial system; yet it does not appear that the tumour possesses any sensibility, since injuries of this kind are not attended with pain. The growth of the cauliflower excrescence is regulated by the distensibility of the vagina; in married women who have had many children, it advances very rapidly; while in females who are not exposed to sexual intercourse, its progress is very slow.

No satisfactory information has yet been obtained on the causes which favour the development of this excrescence; it cannot be attributed either to injury inflicted on the mouth of the womb, or to the immoderate indulgence of the passion, or to the effects of the syphilitic poison; for it has not occurred where violent injury was inflicted during parturition; nor are those persons whose habits expose them to the operation of syphilis more subject than others; and it is said even that celibacy has not prevented the appearance of the disease. It has been observed in persons of every rank, of the most opposite habits as to personal appearance, and of all ages above twenty.

The attempts which have been made to inject and preserve this morbid growth have been unsuccessful; the injection uniformly escaped from every point of its surface with as great rapidity as it was thrown in; and its size, after death, was so much reduced in every instance, that it was impossible to recognise any thing like a tumour similar to what had been seen during life, but merely a small loose flocculent membranous prolongation of the part to which it was attached. These circumstances, together with its hemorrhagic character, have led the author to consider this substance as an assemblage of very minute arteries, and similar to the placenta in structure.

The most important point in the pathological history of this disease pertains to the effects which it produces on the general health. In the origin of the disease, the profuse watery discharge, without fetor and without pain, may continue without attracting much notice, until a copious hemorrhage from the vagina gives rise to considerable alarm. This hemorrhage will be found to return after every exertion, and the most trivial motion of the parts; and while symptoms of indigestion with hysterical motions are induced, as the weakness increases, the feet become œdematous, the urine scanty, and the powers of life may be exhausted by the general dropsical affection, or even by hydrothoracic effusion, long before the original malady would have produced death, and before its nature or influence had been suspected. It is indeed a fact by no means unworthy of attention, that patients who die of this disease are never almost emaciated and extenuated like those who have sunk under the ravages of an organic disorder; but are either drained to death by the profuse secretion, or suddenly cut off by uncontrollable hemorrhage, long before the fat and other soft parts have disappeared. In this respect it differs remarkably from carcinoma of the uterus, with which it would appear it has been too often confounded.

Our readers will easily see that the cauliflower excrescence is not likely to be much under the influence of remedial measures. Yet it is wonderful how much may be done to remove and relieve the prominent and distressing symptoms. The means which, with our author, have been most efficacious, are local blood-letting, by cupping-glasses applied to the hips and sacrum, mild and unstimulating food, sedulous attention to the state of the bowels, with injection of cold and astringent fluids into the vagina. This last operation, however, must be performed in the most gentle manner, to prevent the impulse of the fluid from occasioning hemorrhage. As remedies to recruit and support the general health, our author recommends various preparations of the muriatic and sulphuric acids, and even the sulphate of zinc combined with the sedative powers of the hop-extract. If this treatment does not correspond to the expectations of the practitioner or his patient, a hope of relief is still to be found in the use of the ligature, which, twice in the same case, with our author produced a temporary suspension of all the symptoms.

β. Hydatids of the uterus form the second disease, in which the watery discharge is the prominent symptom. Its presence without any tumour in the vagina or on the labia, and without hemorrhage—with the gradual enlargement of the uterus—enables the practitioner to distinguish it in its early stages; and afterwards, when the process of expulsion, with the usual alarming hemorrhage occurs, its nature is put beyond a doubt. It forms the most common case of the spurious pregnancy of authors. The remedial measures must be limited to restraining the hemorrhage by rest, anodynes, and cold applications.

γ. The oozing tumour of the labium sometimes occupies the entire labial surface, even to the mons veneris. It does not rise much above the surrounding skin, which it resembles likewise in colour. The surface, however, is marked with irregular depressions and eminences, from the former of which the fluid oozes. These characters, with itching, sensation of preternatural heat, and absence of the symptoms of the two former diseases, enable the practitioner to recognise the oozing tumour of the labium.

3. The purulent discharge of the vagina is easily recognised by its usual sensible properties.

α. It is the natural consequence of two different diseases—inflammation of the mucous membrane of the uterus, and of the mucous membrane of the vagina. The first of these is, perhaps, more frequent than is generally supposed; and it is probably a very common cause of suppression of the menstrual discharge. The vaginal mucous surface is liable to inflammation, and subsequent secretion of purulent matter, from a great variety of causes. Besides those to which, in common with other tissues it is exposed, sexual intercourse, the excitement from parturition, and the gonorrhœal poison, are peculiar causes of disease in this canal. Our author very properly does not attempt to discover any difference between the symptoms of inflammation as arising from these various causes; and distrusts even the justice of the old opinion with regard to the possibility of discriminating gonorrhœal from ordinary purulent or puriform matter; and he cautions practitioners to avoid considering as venereal those discharges from the urethra and vagina, which are connected with irritation in remote parts of the system. Such discharge, for example, is not unusual during dentition, while the capsule of the tooth, or the gum which covers it, is subjected to the pressure of the rising crown of the tooth; but it disappears as soon as this irritation has ceased to operate, and is quite unconnected with the gonorrhœal action.

β. Abscess of the labia, the nymphæ, or the vagina, is an affection to which these parts are exposed in common with other organic tissues. In the last situation, it sometimes gives rise to peculiar events, and may occasionally be mistaken for a more serious disease. Examples of this will be found in pages 179, 180, 181, in which the author refers these affections to an impaired state of the general health.

γ. The purulent discharge of the vagina is not confined to the morbid states of the mucous membrane only. It is observed in other two maladies of a more formidable and intractable character. The corroding ulcer of the mouth of the womb—the first of these—is a destructive and disorganizing process, which is occasioned by a morbid state of the part of a very peculiar character. From the os tincæ the ulcerative process proceeds to the cervix, and ultimately the body and fundus of the organ. Our author does not appear to have observed the progressive morbid steps in this process; for we find no precise account of the previous state of the os uteri, or the intermediate changes between sound and ulcerated structure. It is quite different from the carcinomatous ulceration, and may be discriminated from it by the peculiar sense of heat, the yellow purulent discharge streaked occasionally with blood, the absence of lancinating pain, of thickening, hardness, and deposition of new matter.

3. The occurrence of the purulent discharge in the early stage of carcinoma of the rectum or of the uterus, has led Mr Clarke to resume the consideration of these distressing disorders. The importance and difficulty of the subject demands a more detailed examination than our present limits will permit; and we are unwillingly compelled to conclude at this part our hasty account of the work of Mr Clarke. We have already given our opinion of the different parts of this little volume as we went along, and to this we have little of any moment to add. The manner in which Mr Clarke has chosen to communicate his instructions is sufficiently peculiar. He uniformly speaks in the third person; and Julius Cæsar himself could not have observed the rules of *antiegoisme* with more precision than Mr Clarke has done. If we except a single very pardonable panegyric on his brother, it would be quite impossible to discover the smallest proof that we were reading the work of Mr C. M. Clarke. The same aversion to the *air noble* has occasionally led Mr Clarke to employ very inaccurate colloquial expressions. Such little blemishes, however, are completely lost in the great proportion of valuable pathological and practical information with which the work is furnished; and we cannot doubt that the profession will join with us in thinking, that Mr Clarke has rendered some useful services to the healing art.

PART III.

MEDICAL INTELLIGENCE.

Medico-Chirurgical Society of Dumfries.

The Medical Practitioners resident in Dumfries, impressed with the importance to themselves, and to the profession in general, of such Institutions, some time ago formed themselves unanimously into a Society, which has fully answered the expectations formed at its commencement, by cherishing those feelings of amity and forbearance, which ought especially to distinguish the profession of so enlightened an art as that of Medicine.

On the Use of Belladonna in Diseases of the Eyes. By Ninian Hill, M.D., Extraordinary Member Royal Medical Society of Edinburgh.

I beg leave to enclose the case of a young lady, showing the happy effects obtained by the application of belladonna in some diseases of the eye,—a fact not generally known to the public, but of which charlatans successfully avail themselves. From what I have seen and can learn, the itinerant oculist, Mr Williams, uses the belladonna indiscriminately. The particular effect to which I allude, is very striking in the case of a young lady, with capsulo-lenticular cataract in both eyes, the consequence of an attack of purulent ophthalmia in infancy. The margin of both lenses is nearly transparent, that of the left eye more so than that of the right, for it is by the left only the form of objects is ascertained, while the right is merely sensible of light. The eyeballs have the quick tremulous motion peculiar to congenital cases of cataract. By the aid of very convex glasses, and a shaded light, she with great difficulty was taught to read. The books and other objects were carried close to the eyes, as in myoptic patients. When a distant object was to be looked at, she was enabled to have some idea of its form by arching her hands over the eyebrows. She has now used the belladonna for eight years, and is disposed to think that it strengthens her sight, and that its powers have rather increased. But this I attribute to her having acquired greater dexterity in the application. She applies the solution of the extract four times a day, at each time dropping two drops from a quill upon the ball of the eye; and its effect commences in half an hour from its application. The tremulous motion, I observe, returns as soon as the influence of the narcotic subsides; and she now depends so much upon it, that she never leaves her bedroom till the pupil is dilated. When I first saw this lady, I applied the belladonna with the view of examining the state of the lens; the effect of which was so powerf that she was perfectly satisfied, and declined an operation, to which I cheerfully acquiesced. In most instances, narcotics lose their power; nor is the system so susceptible of their effects after repeated use. But, in reference to belladonna, it would seem fortunately to be an exception; but of which, I must confess, I was not formerly aware.

Greenock, 12th June, 1822.

Notice of Dr Gärtner's Discovery of a Duct from the Ovary to the Vagina, in the Cow and Sow.

Some ancient anatomists believed that there were ducts leading from the ovaries to the uterus. The moderns have altogether denied their existence. Dr Gärtner of Copenhagen has, however, ascertained their existence in the Cow and the Sow, and has had an honorary medal adjudged to him by the Danish Royal Society. He intends speedily to publish a Description of it, with Engravings.

First Annual Report of the Liverpool Institution for Curing Diseases of the Eye, Established July 1820.

PATIENTS admitted, from the 1*st of July* 1820, *to the* 1*st of July* 1821.

Acute Ophthalmia	60	Paralysis of the upper Eyelids	3
Purulent Ophthalmia—Adults	40	Tinea	87
Ditto ..... Infants	75	Lippitudo	15
Ophthalmia, with Pustules	39	Inversion of the Eyelids	2
Ditto, with Slough or Ulcer	47	Eversion of the Eyelids	1
Ditto, with Hypopion	5	Tumours in the Eyelids	7
Strumous Ophthalmia	41	Hordeolum	3
Chronic Ophthalmia	77	Diseases of the Lachrymal Passages	10
Ditto, with granular Conjunctiva and vascular Cornea	10	Wounds and Injuries of the Eye	8
Excrescence of the Conjunctiva	1	Malignant fungus of the Eyeball (fatal)	1
Pterygium	3		
Opacities of the Cornea	61	Total	758
Protrusions of the Iris	5	Out of which number..528 have been discharged, cured.	
Inflammation of the Iris	20	60 ditto, more or less relieved.	
Unnatural adhesions of the Iris, with disfigured, contracted, or closed Pupil	25	20 incurable or irregular.	
Staphyloma	5		
Cataract	41	Remaining upon the books	150
Amaurosis, organic and functional	44		
Ditto, combined with Cataract	6		

Eleven cases have been operated upon for Cataract; seven were restored to sight; two are now under absorption, and two have been unsuccessful on account of supervening inflammation. A share of the misfortune which followed the two last mentioned operations may, with justice, be attributed to want of proper accommodation for the Patients, and their neglect to call in assistance at the onset of inflammation.

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THE
EDINBURGH
MEDICAL AND SURGICAL JOURNAL.

1. OCTOBER, 1822.

PART I.

ORIGINAL COMMUNICATIONS.

I.

On the Pathological Anatomy of the Human Brain and its Membranes.[*] By DAVID CRAIGIE, M. D., Lecturer on Anatomy and on Physiology, Edinburgh.

> " Quinetiam morbis in corporis avius errat
> Sæpe animus; dementit enim, deliraque fatur
> Interdúmque gravi lethargo fertur in altum
> Æternúmque soporem, oculis, nutúque cadenti:
> Unde neque exaudit voces, neque noscere vultus
> Illorum potis est, ad vitam qui revocantes
> Circumstant, lacrymis rorantes ora, genásque.
>
> \- - - - - -
>
> Quinetiam, subitâ vi morbi sæpe coactus
> Ante oculos aliquis nostros, ut fulminis ictu,
> Concidit, et spumas agit; ingemit, et tremit artus;
> Desipit, extentat nervos, torquetur, anhelat
> Inconstanter; et in jactando membra fatigat."
>
> *Lucret. de Rerum Natura, lib. 3.*

THE anatomical relations of the organ contained in the cranial cavity are somewhat complicated, and, when rendered subservient to Pathology, they cannot be said to increase in simplicity. This circumstance cannot be attributed to deficiency of investigation, or a narrow and limited collection of the effects of morbid agents; for almost no organ has occupied a greater proportion of the attention of professed anatomical inquirers, while the effects which its morbid states necessarily produce on the system, have rendered it an endless subject of examination to the pathographical physician. We are, indeed, in possession of numerous observations and records of the various pathological conditions in which almost every part of the human brain has been found; but it is rather discouraging to remark, that few general principles have been educed from them, and that we meet with great discrepancy and discordance in tracing the history of the effects of the same organic lesion. It is impossible for us, in the present Essay, to aspire to the difficult task of reconciling those differences, of arranging isolated facts under general heads, or of explaining and correcting the mistakes of former observers; but we propose to exhibit a brief and rapid sketch of the most important deviations from healthy structure, which have been observed in the human brain and its appendages, and to connect these, as far as may be practicable, with the effects which they produce on other organs and different functions. In performing this duty, we deem it by no means necessary to describe the healthy structure of the organ; but if we shall be occasionally led to make any passing remarks on this subject, we trust that they will be received as what personal observation has shown us to be indissolubly connected with the morbid changes, and indispensably requisite in explaining them.

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[*] This paper was written nearly two years ago, and read to the Medical Society of this place in the Session 1820–21; and was then intended as a mere outline of a more complete Essay on the subject. As the engagements of the author will not allow him to finish it in the manner in which he originally intended, at least within an early period; and as he is unwilling to treasure it to the ninth anniversary, with the vain hope of rendering it more worthy of the public eye, he has resolved to let it appear with whatever errors or defects may cling to it. To those who have read the interesting and elaborate letters of M. Lallemand, it may be requisite to say, that in

The whole subject embraces two general divisions. I. The morbid changes of the brain and its appendages. II. The connexion between these changes, and others which exist in different organs.

The former of these divisions I shall examine under the subdivisions of, 1*st*, Morbid changes in the membranes; 2*d*, Mor-

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some points, a coincidence of opinion on the morbid change which has been recently described by the French pathologists, under the name of *Ramollissement du Cerveau*, will be recognised. But this coincidence is purely accidental; and that no reason may be assigned for ascribing it to any other cause, the Essay is printed, with the exception of a single paragraph, *verbatim* from the records of the Society to which it was read. It may be remarked, that the papers of M. Rostan, which were originally published in the Nouveau Journal de Médecine, do not exhibit those points of similarity which would render any explanation like this necessary. The Author, under these circumstances, thinks it would be mere affectation to avoid referring in notes to those parts of M. L.'s Treatise in which the coincidence is most conspicuous.—D. C.

bid changes in the convoluted surface; 3*d*, Morbid changes in the central surface; 4*th*, Morbid changes in the substance of the encephalic mass.

The dura mater, the first and strongest membrane of the brain, may be considered as having a threefold use; 1*st*, That of an interior periosteum; 2*d*, That of a protecting membrane; 3*d*, That of influencing the circulation, by its sustaining the large venous trunks. It performs the part of a periosteal covering to the internal table of the cranium, to which it is connected by numerous arteries and veins, with a degree of firmness which is in general considerable, but is liable to great variation. These vessels by which it is indirectly connected with the pericranium, seem, in some instances, to be capable of a morbid action, in consequence of injuries of the exterior envelope. This sympathetic action, as it has been named, has been fully considered, and very much overrated by Mr Pott, who has laboured to impress the profession with the notion, that the dura mater is always in an inflamed and subsequently sloughing condition when the pericranium has been severely injured. There is, however, no direct proof that this is a uniform result. That it has existed in some few instances, we are perfectly willing to admit; but I am satisfied, from many observations on this point, that it takes place much less frequently than has been supposed. I have seen the pericranium detached for the space of two square inches, and a granulating process commence from the external table, but without the slightest proof of the dura mater being diseased. In the young subject, it is by no means uncommon, when the pericranium is injured, to see the whole thickness of the cranium removed at the spot by the ulcerative absorption, and the wound begin to show the pulsating motion of the brain, and expel purulent matter at every motion of respiration; yet this morbid action will gradually disappear, and leave no trace of any great or important change in the dura mater having taken place. The effects, in short, which injuries of the pericranium produce on the vascular system of the dura mater, are very much varied by the age, disposition, and habits of the individual, and, above all, by the treatment which is employed after the injury.

I have said that the dura mater, in the healthy state, adheres very firmly to the internal cranial surface; and it has been remarked by Dr Baillie and others, that the firmness with which it adheres may sometimes be so great as to amount to disease. I regret that observation forbids me to assent to this opinion; and I can see no reason why any degree of firmness with which it might adhere should be viewed as morbid. I am, on the contrary, inclined to think, that the most frequent and ordinary effect of disease is to make it adhere with less firmness than usual; and I have, in the course of morbid investigations, met with at least one decided instance in which this appearance was remarkably distinct. A man of about thirty-five years, who had received a slight blow on the head, began, some time after, to labour under pain of the whole syncipital region; and, in the course of a few months, had complete amaurosis of both eyes. Remedial treatment was employed under eminent surgeons without much benefit; and, in addition to his other maladies, he soon became epileptic. After suffering, in a hopeless manner, under his complaints for the space of six months, he fell into a comatose state, and died in a few days. Dr Duncan junior and myself examined the body in the presence of some medical friends. On opening the head, we found that the internal table of the cranium did not adhere with the usual firmness to the dura mater, but instantly dropped off as soon as it was divided all round by the saw. The scull-cap, which was thus removed, was unusually thin through the greatest part of its extent; and this thinness was obviously produced by the removal of a part of the osseous structure of the internal table by absorption perhaps. In some few points, the original thickness of the cranium was left unchanged, so as to form the spicula of which pathographical writers have spoken in describing the appearances of the epileptic cranium. These spicula, however, were not produced, as has been generally supposed, by an augmentation of the ossific action, but, as I have already hinted, by the removal by absorption of the bone of the contiguous parts. No blood-drops appeared either on the external surface of the dura mater, or on the internal surface of the cranium; so that the usual arterial connexions of those parts were no longer present. The lateral and inferior regions of the cranium presented the same appearances; and the dura mater seemed to lie very loosely on all these parts of the basis of the cranium, to which it generally adheres with singular firmness. The other morbid changes were such as do not illustrate this state of the vascular connexions of the dura mater and cranium; but I may have occasion to allude to them when speaking of other pathological alterations in this region of the body.*

The dura mater has been described as a frequent seat of hard bodies of an irregular figure, to which the general name of tumours has been applied. I have almost nothing to add to what is generally known on this subject, and must, on that account, say little or nothing regarding them. The osseous degeneration, which is sufficiently common, I have witnessed in the falx; and I have no doubt that it occurs in many other parts; but whether its development depends on an action in the adherent, or the non-adherent surface, I am quite unable to determine.

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* This case has been since described more fully in the 17th volume of this Journal, by Dr Duncan, p. 322. I had described from short notes merely what answered my own views.—D. C.

That the dura mater performs the part of a protecting membrane to the encephalic mass, we conceive to be shown by the productions which it furnishes between the divisions of this organ, and by the peculiar appearance of its interior or non-adherent surface. This appearance has been ascribed to the reflection of the arachnoid membrane, * and has been believed to be established by a great variety of proofs; † but whether we view it as an actual reflection, or merely a modification of the surface of the dura mater, will not perhaps have much influence on the opinion which we have now stated. It is obvious, that the interior or non-adherent surface closely resembles that of the arachnoid membrane to which it is applied, and that it is often the seat of similar morbid actions. We shall therefore notice the pathological relations of both at the same time.

The appearance of the healthy arachnoid membrane is abundantly characteristic;—smooth, shining, and almost transparent, it has been generally considered as a serous membrane, although it might be preferable, in the present state of our knowledge, to view it as one of a peculiar nature. It is very probably the occasional seat of morbid action; and we have frequent opportunities of observing very striking deviations from the usual appearance which it exhibits in health. But it is not unimportant to remark, that these alterations depend, in the majority of instances, on a morbid action going on in a different membrane, and in a different region, sometimes of the encephalic mass. It is, on this account, exceedingly difficult to separate the pathological states of the arachnoid membrane from those of the pia mater, or even of some other parts of the brain, either in practical observation, or in nosographical arrangement; and if, in the present instance, we blend somewhat the appearances of these two membranes, we trust that this will be ascribed to the impracticability, and the consequent impropriety of separating them. We think that the necessity of these remarks will be perceived by the descriptive details which are immediately to follow.

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* Bichat Anatomie Descriptive, Tome 3me, pp. 12, 13, &c.-20. § II. Surface cerebrale.

† Idem. Tome 3me, pp. 30, 31, 32. § IV. de l'Arachnoide.

The most usual morbid alteration to which the arachnoid membrane is liable, is the diminution of its transparency, without any change in its shining aspect. This is most remarkable in those parts of the membrane which correspond to the cerebral anfractuosities, where the arachnoid membrane has then a tinge of a bluish grey colour; but it is likewise sufficiently obvious on the apices of the convolutions, where it prevents the observer from perceiving the natural colour of these objects. The superior part of the hemispheres on each side of the median fossa is sometimes wholly occupied with this appearance; but when it is present, it is always most conspicuous at the basis of the brain. In such circumstances, the arachnoid membrane is elevated and detached from the pia mater by the interposition of a watery fluid; its entire non-adherent surface has a gelatinous appearance; and some observers have thought that a semifluid substance resembling jelly was deposited beneath it; but if a puncture or two be made, a considerable quantity of watery fluid is observed to escape; and the observation of this phenomenon is, in truth, a very good method of proving the existence of the arachnoid membrane.

In this instance, it may very justly be made the subject of inquiry, whether the fluid be derived from the external and adherent surface of the arachnoid membrane, or from the external surface of the pia mater. I am uncertain whether this has ever occupied the reflections of those who have had occasion to remark the appearance, and it would not, perhaps, be easy to devise expedients by which the question might be determined. If, however, we admit this fluid to derive its origin from the arachnoid membrane, the opinion must be held as a proof of the inconsistency of Bichat's reasoning concerning the nature of the arachnoid. Every effusion, whether inflammatory or serous, proceeding from a transparent membrane, takes place, we know, from the general characters of such membranes, at the internal or non-adherent surface of these organs. In this instance, however, the effusion takes place at an adherent or exterior surface of a membrane, which, he has laboured to show, possesses the characters of the transparent or serous membranes. We are therefore reduced to the alternative, of either denying the arachnoid origin of the effusion, or of arranging this membrane in a different or individual class. If we still continue to consider the arachnoid membrane as analogous to the transparent envelopes in other regions of the body, we may then believe that the effusion is always induced by some peculiar action in the vascular system of the pia mater. Other reasons, however, influence me still more strongly in entertaining this opinion, on the origin of the effusion beneath the arachnoid. Not only do we generally find the vessels of the pia mater more numerous and more distended in such circumstances, but we frequently, nay, almost uniformly, observe an analogous change in a part which is a continuation and modification of the pia mater. I allude to the choroid plexus, which I have almost invariably, in such an event, found to exhibit in both ventricles a series of bodies resembling hydatids, about the size of a garden pea. Although these have been considered hydatids by many pathologists, yet I have very strong and satisfactory reasons for believing, that they are the result merely of the natural structure of the vascular network being unfolded and distended by the effusion of a fluid, which is produced by the same action going on in a different part of the same membrane. At the posterior extremity of the mesolobe,* in the fissure between the posterior lobes of the brain proper, and the cerebellum, the pia mater may be traced below the fornix into the middle or third ventricle, in the form of the *velum interpositum* or choroid web, and subsequently into the lateral ventricles in the form of the plexus choroides. When, therefore, from any cause, a morbid action is commenced, either on any part of the pia mater investing the convolutions, or on that which is found in the central surface, this action may be propagated by continuity of surface from the one to the other, or *vice versa*. It is on this account, I conceive, that we frequently find the effusion between the arachnoid and the pia mater, accompanied by the distended state of the choroid cells, and even a quantity of fluid in the ventricles.

The latter circumstance, which very frequently attends the hydatoid appearance of the plexus, has led some practitioners to consider this as the acute hydrencephalus. It is hardly possible, however, to make a greater mistake in the pathology of these parts, than by confounding the two diseases. The effusion of which we have been speaking, occurs in many subjects in whom there is but a very moderate affection of the head; and, at all events, very different symptoms from those which attend the acute hydrencephalus. When the system is under the influence of common contagious fever, it is exceedingly common to find this change in the head after death; and we generally observe, that the last hours of existence have been spent in a state of stupor, or even coma. It is certain, however, that, in many cases in which no symptom of this kind could be recognised, the very same appearances were found on dissection. This diversity in the results of cases, apparently the same, has induced many pathologists to refer those examples of effusion which were indicated by no symptom during life, to the process of transudation after death. That this was an actual fact, was very probable for several reasons; but no direct proof was adduced to support the assertion. I consider myself somewhat fortunate in being able to furnish some very interesting observations on the point at issue, from very high and respectable authority. Joseph and Charles Wenzel of Vienna think that many examples of aqueous effusion in the ventricles do certainly take place after death; and, to confirm their opinion, detail the following cases. *

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* This name given by Chaussier I prefer to the inapplicable circumlocution of *corpus callosum*.

"On the 29th of May 1801, four state criminals suffered at Mentz the punishment of decapitation by the guillotine. Thirty-five minutes after the punishment of the last, the body of the delinquent who was first beheaded, was brought, along with the four heads, to the theatre of Ackermann, Professor of Anatomy. The craniums of three of these were immediately opened, and the brains submitted to careful examination, in the presence, it would appear, of the two Wenzels.

"On examining the brain of the individual who suffered last, a little pure fluid (lympha) was found in the inferior and in the posterior corner of the left lateral ventricle. In the lateral ventricle of the right side, and in the fourth and fifth ventricles, not the slightest trace of fluid appeared. The cavity of the middle septum could not be detected. In neither of the cavities of the second brain could a drop of fluid be seen.

"The third brain presented the same phenomena as the one which had been first submitted to examination; but lymphy or watery fluid (lympha) was observed at several spots between the arachnoid membrane and the pia mater. A small quantity of the same kind of fluid was found in the pericardium of the individual who was decapitated first.

"The brain of the fourth criminal was allowed to remain untouched till the morning of the following day (May 30th), when it also was subjected to examination, at an interval of about fifteen hours after death. The result was, that in the ventricle of the middle septum, in each division of the lateral ventricle on the left side, and in the fifth ventricle, the lymph was in general more copious than in the first and third brains."

From these observations, the Wenzels conclude, that, in brains which are examined immediately after death, while the temperature of the body still continues, the presence and quan-

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* Josephus et Carolus Wenzel De Penitiori Structura Cerebri Hominis et Brutorum. Tubingæ apud Cottam. 1812. Fol. p. 199, *et seq.*

tity of the fluid of the ventricles is in the same proportion as in brains which have been examined at a much later period. This fluid is in truth, they remark, sometimes present, and sometimes it is not found; but when it is, its presence seems to depend on no other cause than that which occasions the pericardial fluid, and what is found between the membranes of the brain; for the nature, condition, and end of both, seem to be the same, and purely in consequence of the entire interruption of the circulation, and the extinction of the power of absorption after death, does that assume the appearance of an aqueous fluid, which, during life, was such a delicate vapour as to escape the eyesight.

These remarks, I conceive, go far to explain many of the cases of watery effusion into the ventricles; but they cannot, I am satisfied, account for the whole of these; for, if all the cases of the description we are considering depended on such a cause, we might expect to see fluid in every brain which we examined; and we should certainly observe a relation between its quantity and the time which has elapsed since the extinction of the vital actions. So far, however, as my observation goes, I am not aware that this has been established.

I believe, therefore, we must admit, that effusion actually does take place between the membranes, and on the central surface of the brain, without in every instance producing very conspicuous effects on other organs and functions. It is, in short, a condition of the cerebral membranes which may occur either with or without affection of the organs of sensation and voluntary motion; but I have in general remarked, that, in those subjects in whom the comatose affection during life had not manifested itself, the effusion had taken place in a very slow and gradual manner. It is, in truth, in consequence of this slow and gradual change, that the nervous system of the sensitive and locomotive apparatus is so little affected; it becomes, as it were, insensibly accustomed to the compression thus occasioned; and it is only when the effusion is extreme, that any striking effect is experienced. Of this we have a remarkable instance in the phenomena of the chronic hydrencephalus, in which the same effusion takes place which we have now been considering. The serum is poured forth in great quantity between the arachnoid membrane and the pia mater, and in the central or interior surface of the brain, where the choroid plexus is likewise affected. Yet, although this state continues in some instances for many years, we rarely meet with any affection of the organs of sensation or locomotion. The last example of this disease, in which I had occasion to examine the cavity of the head, afforded a complete proof and illustration of the accuracy of these views. The subject was a child of about three years old, who had laboured under the symptoms of chronic hydrencephalus for about eighteen months or two years. The habit of this patient was strumous; he had the rachitic cranium; and the osseous texture was exceedingly soft, spongy, much lighter, and less compact than natural. Its size was considerably augmented, and the brain was proportionally distended. A very great quantity of fluid was found between the pia mater and the arachnoid membrane, the cells of the choroid were unfolded and distended, and the ventricles were considerably extruded by the fluid which they contained. Although it might have been presumed that this fluid would have speedily produced a fatal compression of the nervous system, yet the child existed in comparative health for many months, and died apparently in consequence of a disorganized state of the whole of the right lung, and a considerable portion of the left. Every thing, in fact, that we yet know regarding this condition of the cerebral membranes, tends to establish this great general maxim, —that an effusion, nay, to speak more generally, any morbid change, which takes place in a short time, and occasions a sudden compression of the brain, produces death very rapidly; whereas any change which comes on slowly, and produces its effects in a gradual manner, and after a long period, seldom proves *suddenly* fatal. Under the former head, we arrange the effusion which takes place in the course of contagious fever; that which is the result of acute hydrencephalus; that produced by the serous apoplexy, as I shall afterwards show; and perhaps an effusion which takes place in consequence of suppression of urine, and traumatic gangrene. Of the latter we have an example in the effusion resulting from chronic hydrencephalus; in an effusion attending the development of morbid growths or tumours; and perhaps an effusion which frequently succeeds to the last stage of diseases of the heart.

* As an effect of this effusion of fluid on the central surface of the brain, I must notice here a very interesting and curious change which sometimes takes place in the lucid septum. This consists in the progressive attenuation, perforation, and rupture of the septum, so as to form in it a considerable hole, by which the two lateral divisions of the central surface, called the ven-

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* This paragraph, down to "general organic disease," is the only one not in the Records of the Society. I however consider myself entitled to transcribe it here, as the substance was actually written four years ago, and part of it published in the Clinical Reports of Dr Duncan junior.

tricles, communicate directly and freely. At first the septum, thin as it is, becomes thinner, and actually translucent; very soon, a number of minute perforations appear in it, of no determinate figure, but which, gradually enlarging, are separated from each other by thin capillary threads of the cerebral substance, of which the septum is composed. In this state, it looks like a small piece of network placed between the mesolobe and fornix; and a very trifling force applied to it will destroy the interlacement of cerebral threads, and produce a hole of an elliptical figure, the larger diameter of which will be antero-posterior. I have observed this progress in the results of many cases; but the reticulated appearance was remarkably distinct in the septum of a man who had died with symptoms of contagious fever, and in whom this effect had succeeded to the effusion of pellucid fluid. This had taken place both beneath the arachnoid membrane and in the ventricles; in consequence of the latter of which, the mesolobe was elevated from the fornix; and the cerebral matter of the septum was so stretched as to form the network appearance which I have noticed. In this instance, the gentlest application of the finger of one of the spectators produced the breach of the reticula, and the retraction of the fibres, so as to form the elliptical aperture, and complete the communication. I have been since informed by Mr Staff-Surgeon Schetky, that he has lately seen an equally well-marked instance of the reticular septum, in consequence of watery effusion, in the brain of a man who had died of very general organic disease.

It has been said that the arachnoid membrane sometimes secretes purulent matter. If it does so, it must be, I presume, in the course of those actions which take place in consequence of wounds of the head or fractures of the cranium; for I am disposed to doubt its spontaneous origin. I have seen, between the arachnoid membrane and the pia mater which covers the fossa of the oculo-muscular nerves, the annular protuberance and pyramidal eminences, a quantity of opaque substance, of white yellow colour, which, at first sight, resembled purulent matter. When, however, it was more carefully examined, it turned out to be a quantity of coagulable lymph, which had been effused in this situation. As it resembled purulent matter so closely, that, on a cursory glance, it might readily be mistaken for it, I think it may not be unwise to doubt the assertion regarding the secretion of this fluid, till we have a greater number of well-marked and unequivocal cases.

The last morbid appearance which I shall notice, as presented by the arachnoid membrane, is another instance of an alteration taking place in it, but depending on a diseased action, which originates in another part of the encephalic organ. Instead of the smooth and glistening aspect which characterises the sound condition of this envelope, the pathographical observer remarks, that it has become unusually dry, and seems to be no longer lubricated with the fluid which exudes from its non-adherent surface. I do not at present remember that this change in the arachnoid membrane has been mentioned by authors on the subject; but I am quite satisfied of this fact, that it has never been remarked to be connected with a particular condition of the central surface of the brain. I have invariably found it in the true acute hydrencephalus of children, and, so far as my observation bears me out, it indicates the presence of water in the cerebral cavities. I do not at present remember a well-marked case of this disease, the acute hydrencephalus, in which I did not first recognise the dry, dull, and lustreless appearance of the arachnoid membrane, and find, at the same time, a quantity, more or less considerable, of limpid fluid in the ventricles. My limits will not permit me to offer any observations on the link which seems thus to connect the actions of two different parts of the same organ; but, according to the usual principles of medical reasoning, I believe it will generally be considered as an example of the transference or modification of a natural action, in consequence of the excessive degree of a diseased one. The symptoms attending this appearance are abundantly well known, and require, on that account, no notice from me; but it might, perhaps, lead my readers to misunderstand what I have advanced concerning this state of the arachnoid membrane, if I failed to notice certain discriminating circumstances with which it is accompanied.

First, then; it might be understood that, whenever the cerebral cavities are expected, from the symptoms during life, to contain fluid at death, then the arachnoid membrane must be dry, dull, and destitute of its ordinary glistening aspect. This, however, it might be remarked, is contradicted, both by what is generally known on the subject, and likewise by what I have myself said in a previous part of this paper. Fluid may be found in the cavities formed by the central surface, and the arachnoid be unchanged in its appearance; or it may exhibit the appearance which I have described, when speaking of the aqueous state of the pia mater. There is, therefore, a certain order of affections in which the arachnoid membrane retains its shining aspect, and there are others in which this is no longer observed. The latter is what takes place in the acute hydrencephalus, and is, in truth, the only pathographical phenomenon which particularly distinguishes this disease from the other morbid conditions in which fluid is found in the ventricles.

Secondly; a great number of affections of the head have a common termination in effusion on the two surfaces of the brain, the convoluted or exterior, and the central, or that of the cavities. We observe these in persons of all ages and habits—in the young and in the old, in the robust in certain circumstances, and in the feeble and strumous habits; and we recognise them as a sequel to many different or even opposite maladies;—to contagious fever, to dropsy, to diseases of the organs of respiration and circulation, to traumatic fevers, &c. We observe this effusion taking place in periods of very short duration, and sometimes only in the course of many weeks or months. Lastly, we see it, in some instances, attended with very characteristic and formidable symptoms, and at other times producing so little effect on the other functions, that the most sagacious observation cannot, in certain circumstances, be led to suspect it. Are these effusions the same with that of the acute hydrencephalus? If they are not, in what respect do they differ from it? I cannot indulge in the hope that I am to explain this difficulty entirely; but I trust that the following remarks will tend to elucidate it in some degree.

From the historical details which I have already given of the circumstances which attend the morbid appearances I have mentioned, it would appear that, in the instances of effusion between the arachnoid membrane and the pia mater, the diseased action is restricted, with great accuracy, to the vessels of the latter membrane, whether enveloping the convolutions, or penetrating into the central surface. This I conceive to be almost undeniably established by the observations which I have already made; and I think we may with equal certainty say, that the pia mater is never, or at least very rarely, affected in the acute hydrencephalus. This disease, on the contrary, wherever we admit that it is peculiarly seated, has a decided influence on the arachnoid membrane. If we could believe with Bichat, that it penetrates into the central surface, the argument would be still more conclusive. But even this is not necessary to prove that the arachnoid is exclusively influenced in the action of acute hydrencephalus, and is not affected in the other maladies which produce effusion. There is nothing absurd in supposing, that if the action in which hydrencephalus essentially consists, be restricted to the central surface of the brain, or to the epithelion, if you will, which invests this surface, the functions of the arachnoid may be simultaneously affected, so as to induce the peculiar aspect by which it is characterised in this disease.

There is perhaps no occurrence which is so unaccountable as the appearance of air in the vessels of the pia mater. There is not the slightest doubt that it is very frequently observed; and it is possible that those who explain it, by referring it to the process of decomposition after death, are correct in the majority of instances. But there are still examples of this phenomenon occurring in circumstances where we have no reason to suspect that the elementary particles, either of the blood or of the vascular tunics, have reacted on each other, and entered into new combinations.

We are not told whether the gaseous fluid be found in arterial, or in venous tubes exclusively; we may readily conclude, that if it be found in the one, it will speedily seek a path for itself into the other; and all that remains for us to do, is to inquire by what means it gets into the vascular system; for we can easily see, that if it once get there, it will shortly be found in the cerebral vessels; and we can scarcely believe it to be generated in them. Bichat seems to consider it as quite certain, that the air passes immediately from the bronchial extremities into the blood-vessels, without previously entering the cellular texture. This opinion he rests on the fact, that among several subjects in which the arteries and veins of the head and neck contained blood mingled with numerous air-bells, one he had ascertained had expired suddenly in a convulsive motion of the muscles of the chest. * I very much fear, that it will be impossible to derive any thing satisfactory from such explanations, which certainly do not get over all the difficulties. It is perhaps of little consequence how the air enters; it is quite certain that it is found there, and that it extinguishes life very suddenly. On the mode in which it acts, different opinions have been given. Morgagni, who has recorded many striking examples of the event, had recourse to the obvious and simple doctrine of a fatal compression. This idea, however, was much too gross and mechanical and palpable for Bichat, who, though he agreed with Morgagni in thinking that it slew the patient by operating on the brain, yet denied that the small quantity which was found could really compress the organ, and contended, that it produced an interruption or annihilation of the cerebral action. † Although the acute defender of this refined and somewhat mysterious speculation, has supported it with numerous proofs and arguments, yet I must either admit my own incapa-

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* Recherches Physiologiques sur la Vie et la Mort, par Xav. Bichat. An. XIII. (1805). Part II. Article 9vieme § 1. and Notes. pp. 284-287.

† Ibid. Part II. Article 2de § 2. pp. 167-169.

city to perceive their force, or I must say, that they are neither satisfactory nor conclusive. More recently, an opinion, which was pretty generally admitted previous to the time of Bichat, has been revived and defended with great zeal and ability by a physiologist who aspires at the high office of correcting what is erroneous, and completing what is imperfect, in the doctrines of the distinguished author of the Treatise on Life and Death. M. Nysten, to whom I allude, has performed many experiments on the mode in which death takes place when air is found in the vascular system; and these have led him to conclude, that the brain is never the organ affected by it, but that, in certain circumstances, the heart suffers primarily, and in others the lungs. When air, he says, is found in the venous system in very great quantity, it first distends mechanically the right cavities of the heart, and then destroys its contractile power; so that the individual is killed, first by the interruption of the pulmonary, and then of the general circulation.* When, on the other hand, air is found in the venous system, not in sufficient quantity to effect the death of the heart, it forces itself gradually into the branches and divisions of the pulmonary artery, where it produces a singular degree of obstruction, and impedes the complete filling of the bronchial extremities. A peculiar action resembling *peripneumonia notha*, or *bronchitis* takes place, and the individual dies of suffocation in the course of the fourth day.†

Dr Powell has mentioned examples of tubercles forming on the pia mater, especially where it sends processes into the cerebral anfractuosities.‡ His description is not sufficiently minute for the pathologist; and my own opportunities do not enable me to add any thing important, either to our knowledge of the morbid appearances, or to the semeiographical relations of this species of disorganizing process.

The cerebral surface consists of two great divisions, which are continuous, and communicate with each other in a very direct manner. The first of these which is applied throughout its whole extent to the dura mater, or its productions, is exterior, is marked with the bodies denominated convolutions, and is what we name the *convoluted* surface of the brain. The second is interior, is marked with objects of a different description, forms those cavities more generally known in the common anatomical works under the name of ventricles, and constitutes what we name the *central* surface of the brain. Each of these surfaces may be the seat of effusions of serum, of blood, of puriform fluid; or they may be broken down, or disorganized by these effusions.

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* Recherches de Physiologie et de Chimie Pathologiques pour faire suite à celles de Bichat sur la Vie et la Mort. Par P. H. Nysten. A Paris, 1811. Premiere Section. Article I. § 1. pp. 27, 28, and 34.

† Recherches, &c. Premiere Section. Article I. § 2. pp. 37, 38, 39.

‡ Transactions of the Royal College of Physicians, London. Vol. V. p. 233.

The effusion of serum on the convoluted surface, is a very rare occurrence; that on the central, which is infinitely more common, has already occupied our attention.

Blood may be extravasated on the convoluted surface of the brain, in several different circumstances. That which is the effect of external violence, properly comes under the class of injuries of the head, and does not therefore form a necessary part of my duty to consider. When it takes place spontaneously, it produces that assemblage of effects on the functions of sensation and locomotion, to which physicians have given the name of apoplexy. It may occur in almost any point of this surface; but I think it is most frequently observed somewhere along the inferior region. The anfractuosities contiguous to the fissure of Sylvius, are very generally occupied with bloody extravasations; and this may be attributed to the vicinity of a numerous clustre of vessels. The *white perforated spot* of Vicq D'Azyr, * which is remarkable for admitting a great number of vessels from the sylvian artery into the substance of the brain, has been observed by Joseph and Charles Wenzel of Vienna, to be more frequently affected than any other region of the convoluted surface.

I have frequently seen the anfractuosities between the cerebellic folia considerably distended with effused blood, and an extraordinary number of blood-drops on the exterior surface of the annular protuberance.

Similar appearances may be observed on the central surface of the brain; and there is scarcely a single body found in that surface which has not been recorded by some pathologist as the seat of bloody effusion. The parts, however, most frequently affected, are the striated body, and optic thalamus. † Whether these hemorrhagic events occur on the exterior, or the interior surface of the brain—whether they take place on the optic thalamus, or the striated body, or any other part,—they are uniformly attended with one of two effects. If the quantity be considerable—if it be effused suddenly—if active remedies be not used—or if, when used, they be inefficacious; then a mortal compression may speedily kill the patient, and the appearances on dissection will be nearly one or other of those which I have already noticed. If, however, by the proper use of remedies, the effused blood be prevented from acting so long and so completely as to extinguish life immediately, then further changes are found to take place, and these go on until they have so altered the natural structure, that life can no longer be continued. The effused blood breaks down, softens and disorganizes the surface, which, instead of presenting its ordinary polished and rounded appearance, becomes rough, irregular, soft, and pulpy.* This change, which may take place in the course of of about from seventy hours to eight days, has been noticed by Mr John Hunter, and some other authors. It has generally been considered as a species of suppuration; and perhaps this action may succeed to some inflammatory state of the cerebral matter, induced by the presence of the blood, which then acts like a foreign body. I am, however, very doubtful if we can suppose the cerebral matter ever to undergo the suppurative process, unless in consequence of external injury; for I believe that spontaneous inflammation taking place in this organ, proves fatal long before it passes into the suppurative stage. I am aware, that, in advancing this opinion, I expose myself to the charge of contradicting the descriptions given by very high authorities; but the observations of Dr Baillie, the writer to whom I allude, have, I conceive, been derived either from cases which were really and truly extravasations of blood, or the appearances produced by the sequelæ of injuries of the brain.

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* Substance blanche que j'appelle *perforée*. Cette substance, percée d'un grand nombre de conduits plus ou moins verticaux pour le passage d'un grand nombre d'arterioles, se trouve située vers le tubercule d'ou sort le nerf olfactif, entre la racine externe de ce nerf et le trajet du nerf optique. Vicq D'Azyr, Planche xvii. Figure premier. Parisian edition, 1786.

† Josephus et Carolus Wenzel de penitiori structura cerebri Hominis et Brutorum. Tubingæ apud Cottam, 1812. pp. 97, 98, 99. This observation, which I find did not escape Morgagni, has been particularly dwelt upon by M. Lallemand, who finds the *softened* brain most frequently in this site. Lettre I. No. 22. III. and IV.; and in the last paragraph he ascribes this frequency of morbid action to the same anatomical fact, viz. the multitude of arterial branches which enter the cerebral substance at the beginning of the sylvian fissure, or that part which we have named the white perforated spot.

Effusion of blood into the cerebral substance occurs very frequently in the grey matter of the convolutions. This matter is arranged in fibrous lines, the direction of which is perpendicular to that of the convoluted surface, and the blood is generally effused in the interstices between these lines. The effusion, however, is seldom restricted to the grey matter, but in most cases penetrates into the white matter of the hemispheres. A very common situation for this event is the grey and white substance corresponding to the white perforated spot of Vicq D'Azyr. This part, which is situated at the interior extremity of the fissure of Sylvius, corresponds to the matter which is found to form the striated body, and, when examined more carefully, it is found, that the vessels which enter at this part of the organ continue their course into that peculiar substance to which the name of the Capsule of Reil has been given. The whole striated body, the capsule of Reil, and the grey matter of the sylvian fissure, are on this account, and from the vicinity of these vessels to the trunk of the internal carotid, exceedingly vascular; and it cannot be matter of wonder that hemorrhagic effusion should be most frequently observed in this situation.

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* De Penitiori Structura, &c. p. 99, 100. Observat. 3tia et 4ta.

Next to the striated body, the annular protuberance is the most frequent seat of that morbid change which we are at present considering. The mode in which the extravasation takes place, depends on the structure of this object. It consists of a twofold series of fibrous lines, the direction of which is perpendicular to each other. One set is arranged in the longitudinal, the other in the transverse, direction of the body. It is in the interstices of the latter order of lines, that the bloody effusion is most frequently observed. A very well marked case of this kind occurred to my observation about two years ago; and in this blood was found so copiously and regularly deposited between the transverse fibres of the protuberance, that an eminent medical friend thought it worth recording by an oil painting. Regarding the effects of these changes of the protuberance on the system at large, Bichat says, in a manner equally brief and expressive, that although numerous cases of lesion of the brain proper and the cerebellum, without affecting the other organs, are on record, yet he knew of none of the protuberance which was not fatal.*

In the cerebellum, I cannot say that I have had opportunities of remarking any peculiarities which may not have occurred to other observers. I think that the capsule of the *corpus dentatum*, or moriform body, is generally much more vascular than natural in apoplectic subjects; and I have seen the moriform prominences nearly obliterated by the quantity of blood effused on them, or into their structure.

The medulla oblongata has been too seldom suspected to be the seat of disease of this nature, and too few facts have been recorded concerning it. I have seen the exterior surface very rarely occupied with blood. The interior substance, I am satisfied, is much more commonly affected. I have, however, had too few opportunities of personal observation, to say any thing very decided; but I have reason to believe, that the capsule of the *corpus dentatum* of the olivary eminences is generally the seat of considerable extravasation in apoplectic subjects. It is only from future observation in many examples, and conducted with patient and persevering attention, that we can expect any precise or accurate information on these dubious points.

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* Traité d'Anatomie Descriptive. A Paris, An XI. (1802), tome iii. Article 5quieme, p. 108.

The same remarks which I submitted on the effects of these hemorrhagic effusions when taking place on the surfaces, apply to them with equal force when occurring in the substance of the organ. If the effused blood do not immediately cause every vital action to cease, it acts as a foreign body, breaks the fibres, or compresses the globules of which the part may happen to be composed. This mechanical destructive change is succeeded by vital ones, which act in a way exceedingly obscure, but give rise to effects sufficiently obvious. The part contiguous to the effusion becomes soft, pulpy, and irregular. When examined with the microscope, it presents no regular or uniform structure similar either to the surrounding parts, or to that which it presented previous to effusion. A number of minute granular eminences, very different in size and in figure, surrounded with a semifluid substance, is all that the most careful inspection can recognise. I am quite satisfied that this appearance has been often set down by authors as the abscess of the brain; but I cannot admit the assertion to be correct, till they have previously defined what they mean by the term, *suppuration of the brain.** If, indeed, the cerebral matter, in consequence of the presence of a substance which is heterogeneous to it, and destitute of the living properties, be made to assume an action analogous to the inflammation of the other textures; if, in short, it commence a sort of effort to remove the noxious substance, then perhaps we may allow, that the broken down and disorganized parts are actual imposthumes. This view of the effects of the cerebral hemorrhage, however, has, so far as I know, been offered by no one of those pathologists who have spoken so familiarly of the cerebral abscess.

Another effect analogous to that which I have now described succeeds, in some very rare cases, to the extravasation of blood into the substance of the brain. When blood has been effused into the hemispheres without terminating immediately the patient's existence, it may disappear very nearly in the manner I have noticed; but a quantity of serous fluid occupies its place, and fills the cavity, which is never obliterated. This is a very rare appearance; but it is, nevertheless, occasionally met with; and I think that the few cases which have been observed, have been found in the brains of persons who have survived an apoplectic attack for many years, and, at the same time, suffered under a palsy more or less general.

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* Recherches Anatomico-Pathologiques par F. Lallemand, Lettre I. et III., especially No. 27. § xii. xiii. xiv. pp. 474–489.

In the substance of the brain, bodies of a greater consistence than the surrounding parts are sometimes met with in the course of dissection. To these the general name of tumours has been applied. The most rational view of their origin and nature would lead us to deem them, in general, to be cerebral matter considerably changed by some morbific cause, and no longer presenting its usual organized appearance; but generally much harder, resembling sometimes cheese, sometimes soft cartilage. The observations and dissections of the two Wenzels lead to the following results—that the brain proper may be the seat of disorganized portions of three different kinds; *1st*, A tumour of an adipose nature; *2d*, A substance of an osseous nature; *3d*, A substance resembling scirrhus. Among the great number of brains which these anatomists have examined, only two presented the adipose degeneration. These were found toward the exterior or convoluted surface, but penetrated pretty deep into the substance of the organ. The aspect of the interior structure is subcinereous, its consistence solid and firm,—approaching in some parts to bone. Of the scirrhous degeneration, these anatomists met with only two examples, both of which were situated on parts connected with the central surface;—an important mark of difference from that of the adipose tumour, so far as we hitherto know. The ossific change is infinitely less common. With regard to the exclusive seat of all these disorganized portions, it is a general fact, that none have been hitherto recognised in the cerebellum. *

There is perhaps nothing in the whole of pathological science so puzzling and contradictory as the semeiography of these bodies. I have had occasion to know or observe several of them which seemed to have originated under a great variety of different circumstances. The writings of pathologists are full of cases in which tumours had been found in the brain after death, when no morbid appearance, at least not of that kind, nor in that part, had been anticipated;—cases in which, after obstinate and violent cephalaea, substances had been found in the brain, which had first irritated and then compressed it;—and cases in which substances very unlike each other had produced very different effects on the other functions. I have in my collection two small bodies of an irregular form, but not exceeding the size of a small bean, which were found in the anterior lobes of the brain of a young person who had died of chorea,—a disease very rarely fatal. It is well known, that most of these tumours, as they have been named, give rise first to epileptic, and then to apoplectic symptoms; but it is remarkable, that, in very many cases of epilepsy, no such appearance has been found. I knew very intimately the subject of one of these examples of disorganized brain denominated tumour, in whom the first symptoms appeared in the course of a very severe febrile disease, accompanied with affection of the head,—acute pain, double vision, vertigo, and deafness alternating with *tinnitus aurium.* Yet life was continued in exceedingly good health for more than a year; and death took place in consequence of phthisis, fully eighteen months after the original malady.

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* De Penitiori Structura, pp. 104, 105.

Amidst such chaotic discordance of symptoms and morbid appearances, it is difficult, if not impossible, to recognise any thing leading to general principles; and we must either wait until some more fortunate observations shall supply us with the means of discovering greater regularity in the effects of such substances, or we must despair of ever attaining any accurate and precise method of ascertaining the presence of cerebral disorganization, or perceiving the slight and mingling shades of difference in symptoms which closely resemble each other, but indicate diseases pathologically unlike. Before I conclude this part of my subject, I have a few remarks to offer on morbid changes occurring, or said to occur, in particular bodies which are not with propriety referable to any of the above heads. I allude to changes in the *hippocampus major*, changes in the *conarium* or pineal gland, and changes in the *hypophysis*, or pituitary gland.

The *hippocampus major* is, like other objects of the central surface, liable to morbid alteration; and the Wenzels have attempted to convert these to a use somewhat singular. They record three cases in which this body deviated from its usual size, or in which its exterior plate was preternaturally soft and pulpy, or adhered to the contiguous surface of the *cornu.** The individuals in whom these changes were found, laboured under melancholy, insanity, or fatuity; and the anatomists whom I have mentioned think, that a rational connexion may be established between the two circumstances. It is hardly necessary for me to say, that conclusions of this nature can never be relied on; and unless we have a greater number of observations and cases, we cannot, with any propriety, admit the truth of them. I am so much the less disposed to trust to the opinions of these very indefatigable and meritorious anatomists on this point, that repeated and careful examinations of the object in question, have induced me to form opinions entirely different from those which they have given regarding its interior structure.

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* De Penitiori Structura, &c. pp. 142-3. 209, 210—214.

The body named the *Conarium* or Pineal Gland, consists of two parts, the *Conarium proper*, and the *Acervulus*. The figure, appearance, and colour of this body, are well known. In examining brains with a view to elucidate the nature of diseases, medical men had often met with small sabulous or calcareous particles; and it was long supposed that this was a change in the structure of the part, which could not fail materially to affect the functions of the entire organ. Sœmmering was the first who called this doctrine in question; and proceeded to show, by numerous cases, that scarcely any person arrived at the age of puberty, although enjoying the best health, could assure himself that his conarium did not contain calcareous matter. * The period after which Sœmmering always found this deposition, to which he gave the name of *Acervulus*, was the 15th year; but this has been recently doubted by the Wenzels, who declare that they have seen real stony particles so early as the 7th year; and a substance very similar a few months after birth. † I am myself satisfied that I have seen, in the pineal glands of young children whose ages I could not ascertain, but who certainly did not exceed nine or ten, small sabulous particles; but my personal observation does not enable me to say how far the Austrian anatomists are correct as to earlier periods.

The *acervulus* may occur in three different situations; it may be found either in the medullary band which connects the conarium to the optic thalami, or in the pit which unites this part with the body of the conarium; or lastly, in the conarium itself. In infants, before the 7th year, it is never found in the substance of the conarium, but generally in the plate which connects it to the thalami. The most ordinary place for it in adults, is the pit between the conarium and its peduncles; and in aged subjects, it may be found in all the three situations.

It is now perfectly certain, that whether this deposition be found in the one or in the other of these situations, not the most trivial effects on the cerebral functions take place. We cannot, indeed, account for this, or pretend to answer the question of

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* S. T. Sœmmering de Acervulo Cerebri in Ludwig Scriptorum Neurolog. minorum Delectu. Lipsiæ, 1793. Tom. iii. pp. 322, 323, &c.

† De Penitiori Structurâ, pp. 155-157.

Sœmmering; but it is of some consequence to know what is actually morbid and what is healthy, and I must rest my apology for the length of these observations on this circumstance.

Joseph and Charles Wenzel have laboured with much assiduity to show, that there is an intimate connexion between the conarium and the hypophysis or pituitary gland, and between both of these bodies and certain conditions of the entire system. But the examples which they adduce, are a great deal too few, and their observations are a great deal too vague to allow these conclusions to be yet ranked among the class of ascertained pathographical facts.

[*The conclusion in next No.*]

II.

Report of Cases treated at the Ophthalmic Hospital, Chatham. By Andrew Smith, M. D. *Communicated to Professor Thomson.*

(Continued from Vol. xvii. p. 509.)

HYDROPHTHALMIA.—Only one example of dropsy of the eye came under observation during the period to which this report refers. The individual who was the subject of it had laboured, for four months previous to his arrival, under severe purulent ophthalmia, which complaint still existed at the time of his admission into the hospital, though in a less aggravated form. He stated, that the increased size of the eyeball first became evident about three months after the commencement of the inflammation, and that it had kept progressively, though slowly, enlarging ever since.

The following were the appearances exhibited on his coming under treatment. The globe of the eye was much and generally enlarged, with its anterior part protruded very considerably from between the lids, and affected, as well as the concealed portion, with a good deal of increased vascularity. The cornea was unusually prominent, and rather of a conical shape, with a dense white opacity of about the size of a split pea near its centre or apex, and the rest of it very turbid and muddy; so much so as to render it very difficult to ascertain the colour of the iris. A semicircular black line could be observed towards the lower and inner edge of the central albugo, formed by the margin of the pupil, which was found to increase or diminish in breadth pretty readily, according as the eye was exposed to a greater or less degree of light. The power of vision, as far as related to the discernment of objects, was entirely gone; yet he still was able, with ease, to distinguish light from darkness. Lining of both upper and lower lid granulated, with slight puriform discharge.

The treatment in this case was at first directed to the destruction of the granulations, which, being effected according to the method already described, the system was brought gently under the influence of mercury, and kept so for a fortnight, without the least advantage; indeed the size of the eye had, if any thing, increased within that time. The cornea was now punctured at its lower edge with a large round needle, and the aqueous humour freely evacuated. The ball, after the lapse of a few days, appeared considerably reduced in size, but soon again attained its former dimensions. The operation was then repeated, and with the like temporary advantages; but, almost immediately after this second puncture, the whole white part of the eye assumed a bluish tinge, and became quite irregular, with other marks of approaching, or rather advancing, disorganization; such as gradual loss of power of discerning light, change of colour and diminution of the surface of the iris, fixed pupil, and severe lancinating pains in the ball of the eye. As such symptoms, either individually or conjointly, afforded very little hopes of the eye being recoverable, it was deemed the most advisable proceeding to remove a portion of the cornea, and allow a free exit to the humours, as in staphyloma; for the mode of doing which, and after treatment, see that disease. The ease afforded by the operation was instantaneous and lasting; the patient soon experienced a degree of comfort to which he had been an utter stranger ever since the attack of inflammation; and, in the course of ten days, was dismissed from hospital as well as ever he was, with the exception of the loss of an eye.

Iritis.—Twelve patients were treated with inflammation of the iris; in ten of them, the disease existed in one eye only; and, in the remaining two, it affected both. The complaint in ten was recent, and characterized by the usual attendants of acute inflammation; whilst in the others it was of considerable standing, and exhibited the symptoms of chronic action.

The general symptoms were, an increased vascularity of the iris, and external tunics of the eyeball, pain, intolerance of light, lachrymation, immobility, contraction, or irregularity of the pupil, dimness of vision, and sense of over-distention of the eyeball.

Increased vascularity of the Iris and external tunics of the Eyeball.—In all the cases an increased vascularity was observed, either in the substance of the conjunctiva, or on the surface of the sclerotica. This vascularity became more and more evident as it approached the cornea, and at last formed a bright red ring, about a line behind the circumference of that tunic. In addition to this redness, the source of which was evident, the eye, for some lines behind the cornea, had a slight scarlet tinge, an appearance which I am inclined to look upon as peculiar to this inflammation; and, being an invariable attendant, forms one of the best diagnostic symptoms. In most, indeed I may say in all, the colour of the iris was changed to a reddish hue; and in several, small vessels were observed ramified over its surface. The external redness, after keeping the lids shut for some time, was generally observed to become very trifling; but immediately upon their being separated, it returned with a degree of intensity, modified by the quantity and strength of the luminous rays admitted. In three or four of the patients, a double set of vessels were observed running towards the iris at different depths, and differing, not only in size, but also in colour; the external set being the smallest, was also the most vivid, agreeing exactly with a similar observation I had occasion to make, when treating of the distribution of the blood-vessels, in that form of ophthalmia, complicated with a granulated state of the lining of the lids.

The *pain* not only varied in its site, but also in its nature, duration, and intensity, in different individuals. In some it was confined entirely to the eyeball, in others in a great measure to the eyebrows, crown of the head, or occiput; and in a third class, it affected the eye, and one or all of those parts at the same time. Some described it as being of a darting or pricking kind, and said that it occasioned a sensation towards the bottom of the eye, like the prick of a pin; others, that it was of a dull and aching character; and others again, that it was of a pulsatory nature, and described by them as resembling the sensation often present in whitlow. In one or two of the number it was constant, and suffered little, if any, remission, till the general symptoms began to yield to the remedies employed; but in the majority it intermitted, and was found to be particularly urgent, from about eight o'clock in the evening till six the following morning. The darting pain was seldom, indeed, I may say never continued, having generally recurred at irregular intervals, which varied from half a minute to a minute, and was then either one single dart, or two or three in succession. The pulsatory pain was more constant, and lasted longer; the aching variety was also rather constant, and was that which, in two of the cases, contined without interruption till the disease began to abate. In most, indeed I may say in all, the degree of severity of the pain was very considerable, and proved one of the most annoying and troublesome symptoms of the disease, as it often prevented the patients from enjoying any thing like a refreshing sleep for many nights together.

Intolerance of Light was one of the most constant symptoms of this inflammatory complaint, and, in several of the cases, ushered in the disease. In a number it was evident, before any marks of increased vascular action were perceptible, and in the majority it continued after most of the other symptoms were relieved, if not entirely removed; indeed, the diminution of this symptom was found to be one of the most certain signs of the disease being on the decline. When the patients were brought into a bright light, it was with the utmost difficulty the lids could be separated, and when that was effected, they described the sensation experienced as resembling something hot and sharp penetrating the eye, and striking against its posterior part; an uneasy sensation also extended to the forehead, and even occasionally to the crown of the head.

Lachrymation was considerable in all the cases, particularly upon the individuals being exposed to a strong glare of light, and only diminished as the other symptoms subsided. The tears were by most described as being hot and acrid, irritating and burning the parts over which they passed.

Immobility, Contraction, or Irregularity of the Pupil.—The pupil was in general observed to be completely immoveable, as soon as the disease had fairly developed itself, and for the most part continued in that state for a day or two, previous to its becoming contracted, and assuming an irregular form, which in all the cases it was afterwards observed to do. In some patients it assumed somewhat of an oblong form; in others, it became semilunar or semicircular; and in a third division, it was so jagged and distorted as not to admit readily of description. The irregularity and diminished size appeared to have been occasioned partly by actual contraction of the circular fibres of the iris, and partly by points of effused lymph, which had been thrown out by the diseased vessels, and had adhered to the pupillary margin of the iris. The instant the usual effects of the medicine employed were observed, the last appearance began to fade; and as the cure went on, the effused substance, in all the cases except one, suffered a complete absorption.

The effused lymph either adhered to the margin of the pupil in the form of small filamentary threads, of round and irregular nodules, or fell down, in the form of minute flocculi, into the anterior chamber. The latter variety was always more readily removed than either of the former, which probably arose from the lymph not having become organized in the one case, while, from its site and connexions, it might have suffered from that process in the other. It was sometimes observed of a pale cartilaginous colour; at other times it was more or less red; and, in one instance, it exhibited nearly the appearance of healthy muscle.

As the cure went on, occasionally small black points or threads were noticed, extending between the posterior part of the pupillary margin of the iris, and the anterior part of the lens. These were probably small portions of the ciliary process, covered by the pigmentum nigrum, which had formed adhesions to the *tunica hyaloidea* during the acute stage of the disease, and had been torn by the dilatation of the pupil, effected by the repeated application of belladonna. These filiform bodies were always sooner or latter separated from one of their connexions by the action of the iris. The edge of the pupil, in two instances, retained a serrated appearance, after its regular functions had been restored, and all other marks of disease removed; but was attended by no inconvenience.

Vision, in all cases, was impaired, and very much confused during the existence of the disease, which seemed to be occasioned by a cloudiness of the cornea, and a more than usual convexity of that tunic. *Sense of over-distension of the eyeball* was a symptom very generally complained of; and, always when it was most urgent, vision was observed to be most confused. The patients used to describe the feeling they experienced, by saying, that the ball of the eye appeared to them as if too large for the cavity it was contained in, and that it was ready to start out of their heads. At different times, when they complained much of that symptom, I inspected the eyes minutely, and was perfectly satisfied that the anterior part of the eyeball was more prominent than natural.

Causes.—The iritis, by ten of the men, was attributed to the action of cold, and by two to rheumatism; but from what I could learn, I am inclined to look upon the two last cases as having derived their origin from the same cause as the others. As, however, the syphilitic and mercurial actions have lately got the credit of being very frequent exciting causes of iritis, I shall, for your satisfaction, give the result of the inquiries made relative to such points as the patients admitted. *First*, then, five out of the twelve had had syphilis; three had had gonorrhœa; and the remainder had never had either of those diseases.

One of the first division had sores on the penis about two weeks before; one about four weeks; one about four years; one about eight years; and the other had had the disease ten times within the last six years. Two of the second division had each a running from the urethra about three years before the attack of inflammation of the eye, and the third about four years. Three of those who had sores had been cured by mercury, and one of them had also used that mineral for cataract. Two of those who had had gonorrhœa, had employed mercury for it, or rather its consequences, viz. bubo; and the other seven had never, to their knowledge, taken any of that medicine.

Here, then, we have iritis occurring in those who had laboured under syphilis or gonorrhœa, and also in others who had never had either of those diseases; again, in those who had taken mercury, and in those who had never used it, except, perhaps, as a purgative, in the form of calomel—results which, as far as they go, in my opinion have but little tendency to support the supposed noxious effects of either syphilis or mercury on the eyes.

From those results, and from many others of a similar description which I have met with during the last five years, I am inclined to view the syphilitic and mercurial actions as predisposing, instead of exciting causes of iritic inflammation, partly by their deranging the healthy functions of the system, and partly from their requiring confinement; whereby the body is rendered more susceptible to the action of cold, which appears to me to be the general exciting cause of idiopathic iritis.

This opinion, I think, is warranted, from having remarked, *first*, that the greater proportion of individuals who have come under my notice with this form of inflammation, during the existence of either of the actions above alluded to, were aware of having exposed themselves, either voluntarily or accidentally, to cold, immediately before the attack. Thus, one of the twelve patients, whose cases have just been mentioned, was seized with the disease soon after walking out of his ward to the necessary, in a cold winter night, while under slight salivation; and a second contracted the complaint in the course of the night, when sleeping opposite an open window, into which a current of air flowed, when under treatment for secondary syphilis without mercury. *Secondly*, that in the greater number of patients, other symptoms, the consequence of exposure to cold, did exist, such as what the patients designated stuffing of the head, increased discharge of mucus from the nose, rawness and soreness of the fauces, &c. *Thirdly*, that several examples of inflammation of the iris have occurred during the time men have been confined in hospital for other diseases, from similar irregularities as those just mentioned, two instances of which lately came under my notice; one occurred in a man who was under treatment for a bad fever, and the other in one labouring under a pulmonic complaint. *Lastly*, that other inflammatory complaints, as well as that of the eye, are frequently brought on from the same improper exposure, during either the treatment of syphilis, or the action of mercury, such as, inflammation of the glands, fauces, bronchia, lung, intestines, &c., but which have not yet been generally considered as arising from the action of venereal virus or of mercury.

But to have done with this subject, I should beg to suggest the following points for investigation.

1*st*, Does inflammation of the iris occur more frequently in persons who have, or do labour under syphilis, than in any other class of individuals?

2*d*, Does it observe any peculiar appearances in subjects labouring under a venereal taint; and does it require any other treatment than that found effectual under the opposite circumstances?

3*d*; Does it occur equally frequently amongst persons who are properly guarded against cold, as in those whose circumstances or situation in life renders them liable to experience frequent atmospheric vicissitudes?

4*th*, Are patients generally affected with catarrhal symptoms at the time, or previous to being attacked with the inflammation; or are they aware of having caught a cold? And,

Lastly, Did they labour under any evident disease at the time they became ill with iritis; or had they been lately confined by sickness or any other cause?

Treatment.—When the symptoms of the disease were not concealed in the first instance, the cure was readily effected; but in two cases where the patients did not report themselves till after some continuance of the complaint, the one, after much trouble and time, got well; but the other was left with an opacity of the lens of one eye, and an impaired state of vision of the other. On admission into hospital, the first treatment was entirely regulated by the severity of the symptoms. When the pain was violent, or even moderate, and of long standing, blood was generally abstracted from the arm till syncope, or a state nearly approaching to it, was produced; but when the pain was pretty moderate, and the other symptoms did not run high, local blood-letting was considered sufficient. This was accomplished by leeches applied to the vicinity of the lids, in a number regulated by the severity of the disease. The bleeding was encouraged by warm fomentations; and a dose of some purgative medicine was administered, generally in combination with a small quantity of the tartrite of antimony, which together produced not only an evacuation from the bowels, but also kept up a degree of loathing and sickness, which was found very materially to diminish vascular action. In this disease, no benefit was found to result from giving the latter medicine in doses, so as to induce vomiting; indeed, I think I have observed bad consequences to follow that action, when accidentally produced. As soon as the bowels were freely evacuated, the next object was to affect the mouth by mercury. This was done by giving calomel in conjunction with opium, during both the day and night, in doses of two grains of the former, and a quarter grain of the latter, every hour, or perhaps every two hours, till the gums felt tender, or an increased flow of saliva was manifested.

About this period of the cure, the patients generally stated, that they experienced a very considerable abatement of the pain, and sense of fulness with which they had been hitherto annoyed. The vision immediately became more clear, and the irregularity of the pupil and effused lymph began to diminish, the redness of the extreme parts to subside, and the iris to assume its usual and natural colour. A continuation of the mercury for ten days or a fortnight, so as gently to keep the mouth affected, removed the disease in all except one. In that case, the effusion of lymph which took place into the pupil, completely obliterated it, and caused a total blindness. The pupil of the other eye was, during the activity of the disease, contracted to nearly the size of a pin's head, immovable and irregular; but by mercury, and the assistance of the extract of belladonna, it regained, after some considerable time, its former size. This man positively asserted, that he never experienced any pain and by trusting to his word, the treatment pursued was less active than the general appearances would have led us to adopt. I have no doubt but this man dissembled, and asserted what was not the case, as he was very much averse to, and afraid of, blood-letting; even the small quantity that was abstracted, appeared to cause considerable dread and consternation.

One out of the twelve was treated without mercury, and with perfect success. It yielded readily to local blood-letting, purging, blisters, and the use of belladonna, assisted by proper diet and regimen.

That the disease may be thus cured without mercury, I admit; yet I cannot help observing that, as far as my experience goes, the general run of cases can neither be cured so safely nor so speedily by any other method; and that the chance of losing or impairing the visual functions is much greater by the one treatment than by the other. This, I know, does not agree with your views; but when I consider the high value you set on candour and open confession, I can readily expect your approval of my stating an opinion which, I think, is warranted from my experience, although at variance with yours.

There is, however, one form of iritis which is to be cured with as much ease and safety without mercury as with it; I mean that of a chronic description, like that treated, as already mentioned, by local blood-letting, &c. In it, the pain is either not present, or is very moderate; the external redness pretty considerable; but the colour of the iris is not much changed; the pupil is, if any thing, for several days at least, dilated, and possesses but little motion; it then contracts very slowly and regularly; lymph is seldom if ever thrown out till the disease has existed for two or three weeks; the ring of vessels round the cornea is quite distinct; the intolerance of light is inconsiderable; and the lachrymation present but in a very trifling degree. When such are the symptoms which mark the disease, and which no doubt indicate a genuine iritis, I should never think of employing mercury, unless local blood-letting, blistering, purging, and the use of belladonna, failed to relieve the complaint, which I have never seen occur.

With respect to the use of the belladonna, I may state, that it was always applied after the first bleeding had been performed, and was besmeared in considerable quantities over the eyelids and eyebrow, whilst a solution of the same substance was dropt between the lids every three hours. When commenced thus early, it sometimes prevents entirely the irregular contractions of the pupil, and appeared also even to have a specific effect on the general inflammation, as that seemed evidently to lessen after it had been applied for some time. I frequently felt a doubt whether this change might not be the consequence of the previous bleeding; and therefore employed it, after an equal number of leeches had been applied in simple ophthalmia; but certainly, as far as I could judge, with just the reverse effect I had been accustomed to observe it produce in iritis, increasing the vascularity, lachrymation, intolerance of light, &c. In inflammation of the iris, it generally occasioned an increased flow of tears for some considerable time after it was applied, the eye appearing more moist than before. In the course of a few hours, sometimes much sooner, and at other times not till after a longer period, it began to dilate the pupil either generally or partially, according to existing symptoms. It was often found necessary, when adhesions had taken place between the iris and lens, to continue this remedy for some time, after all the others had been laid aside, in order to ensure the future regularity and natural functions of the pupil. In consequence of its losing its powers in the course of a day or two, the old was generally washed off every morning with a little warm water, and some fresh extract applied.

Staphyloma.—The number of patients affected with staphyloma admitted into hospital, amounted to eleven. Ten of them had the operation for evacuating the humours performed; and in the other, absorption of those parts took place spontaneously. In four, the disorganization of the cornea had attained a very considerable extent, and was so prominent as to protrude very considerably from between the lids, producing not only much uneasiness and pain, but also a disfiguration of the countenance. In addition to those inconveniences, the eyes were always suffering slight attacks of inflammation; and there was constantly a more or less disagreeable puriform discharge issuing from between the tarsi, occasioned no doubt by the friction on the irregular surface during the motions of the lids.

Under such circumstances, it was deemed advisable to remove the protuberance, and allow the humours to escape, in order to obtain a collapse of the eyeball, as the patients were all blind, and nothing holding out the least reason to expect any amendment. Another reason for operating was, that in consequence of the irritation occasioned by the deformed parts, there was constantly kept up a slight weakness and watering of the sound eyes, which, I am happy to say, disappeared in every instance, after the contents of the diseased ones were discharged. A total collapse of the diseased organ, in one instance, as above remarked, took place, without any operation, some time after the lunar caustic had been pretty freely applied to the most prominent part of the cornea.

When the operation was to be performed, the patient was seated as in the operation for cataract; and the surgeon, standing before him, depressed the lower lid with the little finger of his left hand, while an assistant, standing behind the man, gently raised the upper lid; and then the former, with a common tenaculum or dissecting hook, held between the fore-finger and thumb of the hand which was most convenient, laid hold of the protruding cornea, and with a common scalpel cut it off, generally from above downwards. This being effected, a sudden gush of humours always took place, after which the lids were allowed to be kept shut for some time, and then gentle pressure was made on the outside of the upper lid, to force out what remained after the first discharge. This having been done, the lids were again closed, and the eye was covered with a wet rag or a poultice, according to circumstances.

In the course of a few days, a considerable puriform discharge began to issue from the opening, and also flakes of coagulable lymph, at which time the soreness that had existed since the operation began to diminish. There was regularly observed, even sooner than this period, a considerable redness of the remaining part of the globe; and on opening the palpebræ, a copious effusion of a limpid watery-looking fluid invariably took place. The secretion of aqueous humour went on for some time after this, as was evinced by the repeated enlargements of the eyeballs, and their sudden diminution after a flow of a transparent clear fluid, and a sensation as if the eye had burst. About the fourth day after the operation, a white ring began to surround the edges of the wound, which kept gradually increasing till the whole had filled up. A small opening, which would admit about a pin's head, often continued stationary towards the centre for some considerable time, and was only effectually obliterated by repeated applications of caustic.

In a few of the cases, instead of an opening a small fungus formed, which resembled in form a small pea, and had a clear jelly-like appearance, which required the repeated application of the *nitras argenti* before it could be destroyed, and cicatrization obtained. In five patients, the whole of the cornea close to its junction with the sclerotica was removed; and in the others, only about two-thirds of it. The evacuation was more immediate and complete in the first cases, but the healing of the wound was much longer; indeed, such was the difference of the latter, that I think in no case ought more to be taken away, than will readily allow the lens and humours to escape by the assistance of a gentle pressure. As soon as the healing process commenced, and the soreness and inflammation abated, nothing was applied to the eye; but the patient was merely directed to keep a shade over it, to prevent extraneous bodies from coming in contact with it. Six of the number, when the operation was completed, and the humours evacuated, saw very distinctly, but not sufficiently to allow them to distinguish any objects. They however thought, from what took place, that their vision would be restored; a hope which they were prevented from long cherishing, by the unwelcome information received from their medical attendants.

(To be continued.)

III.

Cases and Observations on Simple Chronic Inflammation of the Uterus, in which State this Organ may become Retroverted. By John Robertson, M. D. Glasgow.

The great difficulty in comprehending the real nature of many uterine disorders, and the frequent want of satisfactory information from reading on such subjects, have induced me to beg the favour of your inserting the following observations into your useful and interesting Journal. They formed the subject of a paper read to the Glasgow Medical Society in November 1817; and the occurrence of several cases since, lead me to attempt a general explanation of the Nature, Diagnosis, and Treatment of the affection in question.

The first case I propose noticing, was that of a carter's wife, a delicate looking woman about 30 years of age, who, during three months, had observed no menstrual discharge, and had since been troubled with flatulency and indigestion, and triflingly affected with what she called a gravellish complaint. The latter had recently become rather more troublesome, attended with a weakness of her back, and slight uneasiness in her groins; yet of so little consequence did she deem her complaints, that she applied no remedy, and went about her daily occupation as usual.

On the 27th November 1816, however, while walking across the floor, she was suddenly and unaccountably seized with excruciating pain in the lower part of her belly. Immediately thereafter I was sent for, and found her shrieking from agony, every few minutes aggravated by violent spasm, almost exclusively referred to the umbilical and lumbar regions. Her countenance was keenly, or rather wildly, anxious; she lay in a half recumbent posture, with the knees drawn up towards the belly; her tongue was dry and parched; heat of skin rather increased; the pulse beat so quick and small that it was in vain to reckon it; and, on inquiry, she denied any suspicion of her being pregnant.

About ℥xvi. of blood were drawn from the arm, when she sickened and became faint. The pain abated; but her strength reviving, it threatened to return, when a tea-spoonful of laudanum was exhibited, which, in a few minutes, losing its effect, was repeated. Fomentations were then applied to the abdomen; an anodyne enema was administered; and, in an hour, I left her drowsy, and nearly free of pain.

On the 28th, I found her comparatively easy; complaining but of a sense of weight and soreness of the abdomen, especially the lower part, and also of the back and thighs; she was harassed with a continual desire to void both her urine and feces; and, on attempting to walk or stand, she experienced the greatest pain. She still denied being pregnant; and therefore was averse to examination *per vaginam*. The horizontal posture was enjoined, and castor oil frequently exhibited.

She remained more or less in this state till the 5th of December, when the pain, in all its violence, recurred, accompanied with a distressing flatulent distention of the abdomen. The above practice again was had recourse to, and was followed by nearly a similar result, the flatulent tendency being afterwards overcome by small and repeated doses of calomel, magnesia, and rhubarb.

During this attack, I remarked that, while the spasms were less frequent, they were attended with a more decided bearing down than before; that, on remission, the pain confined to the lumbar and hypogastric regions was dull, heavy, and constant; that the dysuria and tenesmus were still distressing: and she acknowledged that, during the last month, she did occasionally feel shooting pains in the mammæ.

Impressed with these circumstances, I insisted on examination, and found the uterus considerably lower than in the natural unimpregnated state; enlarged to what is common about the fourth month of pregnancy; but so tender to the touch that little freedom could be used. She felt weak; and her pulse, though quick, was rather feeble.

Did such a state warrant the suspicion of pregnancy? I thought so—said so—and predicted to the friends, that should another attack occur, abortion most likely would be the consequence. Some source of unusual irritation, however, evidently existed in the uterine region; she was troubled with a frequent painful cough; and her pulse was quick and irritated. On which accounts, a large blister was applied to the hypogastric region, and small doses of tartar emetic exhibited.

By these means, she became greatly relieved, the pain being nearly subdued; the cough had entirely ceased; and the pulse greatly more calmed. But on the 14th, she complained of a trifling relapse of the pain, which was removed by fomentation and the opiate liniment with ammonia. On examination *per vaginam* at this time, the uterus appeared to me less dependent;

not nearly so tender to the touch; and, as I fancied, greatly more buoyant then when the symptoms were more urgent. So that these circumstances seeming to support my belief in her pregnancy, together with the fact of the uterus being felt enlarged in the hypogastric region, and the supposition of its having, as usual, risen above the brim of the pelvis, I rather too rashly prophesied that no return of the pain would take place, and that it was not likely abortion would occur. On the 16th, I observe her reported in my notes free from pain, but still extremely weak.

Thus she continued for about fifteen days; when, on the 2d of January, she again was attacked with the same symptoms as above. On examination, I found the uterus descended lower than when I last examined; immovably impacted in the cavity of the pelvis; the fundus turned backwards; and the *os uteri* tilted forwards behind the upper part of the arch of the pubes.

I now looked on the case, as one of *retroversio uteri*, and, accordingly, endeavoured to reduce the malposition, but ineffectually. The attempt was attended with considerable pain; and, neither the tenesmus nor dysuria being at all urgent, I deemed farther efforts unadvisable. But recollecting the advantage formerly derived from the blister and tartrite of antimony, I repeated them with evident advantage, although less so than before; for the pain, in three days after, returned with a severity at least equal, requiring the large exhibition of opium *per os* as well as *anum*, thus for the time diminishing the patient's torture.

At a loss what to do—the misplacement remaining, still seemed to threaten a relapse; partly therefore at random, and partly with the hope of reducing the irritation, I recommended a pill, composed of gr. ij. of calomel and gr. i. of opium, to be taken three times a day. From the commencement of these, no violent pain ever after occurred. In three days the mouth became slightly affected, when the pills were omitted. The uterine tumour, although not obviously diminished, became much less tender to the touch, and a bloody serous discharge (not inaptly likened by the patient to "moss water") began to ooze from the uterus.

The symptoms, nevertheless, were still sufficiently urgent; when, about this time (the middle of January), Dr Baird saw her with me. He agreed with me in thinking the uterus retroverted; and ineffectual attempts were again made to reduce it. He suggested the possibility of very copious injections *per anum* assisting the efforts to raise the fundus; but all to no purpose.

A few days after, the above pills were again had recourse to, but less frequently taken; castor oil was occasionally exhibited; and small doses of cream of tartar and nitre given as a diuretic. The bulk of the womb soon began, very slowly, but evidently, to diminish; the irritation on the rectum and bladder in proportion abated; but the discharge alluded to, for a considerable time, continued in varied quantity: For which, she was recommended to use injections of warm water, infusion of chamomile, and so forth, dreading lest more astringent injections might reproduce the pain.

Finally, although I long continued to think pregnancy to have been connected with her complaint; yet, to this day, there has never appeared any thing like the blighted remains of a foetus. I saw her in March 1817 in good health; free from discharge; the uterus, to the touch, in every respect natural; and I then learnt from her husband, that the first symptom of her complaints was an occasional *dolor internus ex coitu*. Within these few days I have heard of her since continuing well.

The above interesting case, it will readily be observed, was far from understood; and the impression left on my mind was far from satisfactory, till I had occasion to contrast it with the following.

On the 17th of June 1817, I was requested to see a girl, 19 years of age, who, by the neighbours, was considered dying. On entering the house, I found her resting on her knees and elbows, weeping like a child from the severity of her pain. I was informed, that, ten weeks previously, she had been delivered of a still-born child of the full time; that her labour was natural, and her recovery so good, that on the 10th day from the period of her delivery, she resumed her work in a cotton-mill. I was most minute in my inquiries respecting the extent of her recovery, particularly regarding any tumour or fulness in the lower part of her belly, a degree of which she acknowledged was perceptible for the first three weeks; but after this, to use her own expression, she "felt as swamp as ever." I learnt, however, that the lochial discharge had ceased unusually soon; and that, although she could pass her water freely enough, she had more frequent calls to do so than before.

Such was her state, till within two days of the time I saw her, when she observed, that without any obvious cause, her calls to pass urine became still more frequent; feeling at the same time a kind of dull uneasy weight in the loins, with a sense of trifling pain in both groins; yet of so little consequence did she esteem these, that her relations were not informed of her ailments, nor did she quit her work till the forenoon of the day on which I saw her.

Her pulse was quick, feeble, and even tremulous; the pain, judging from appearances, was truly agonizing, chiefly referred to the umbilical and hypogastric regions, although the whole abdomen, back and thighs, were also complained of. The urine and feces were reported to have been very lately and freely evacuated; the menstrual discharge had not appeared since delivery; but she being liable to nervous affections, and of late much troubled with flatus, I was inclined to coincide with the old women's decision, of my patient's complaint being violent colic. With this view, I dropped her out 60 drops of laudanum; and farther prescribed a dose of castor oil and calomel, to be taken an hour after. In the evening I found her much relieved, and asleep.

But the morning following, I was disappointed to find her as ill as ever; principally complaining of the regions of her pubes, back and groins; of frequent inclination to pass water, and a constant desire to evacuate *per anum*, which, when attempted, was accompanied with such a strong and involuntary bearing down, as if, she said, her " whole guts were coming away. ".

Struck with the suddenness of the attack, and the strong resemblance of the symptoms to those of the last case, I immediately examined *per vaginam*. I then discovered the uterus considerably lower than it ought to have been; enlarged, as nearly as I could guess, to about the bulk of one's fist; the fundus being directed backwards into the hollow of the sacrum; while the mouth, which was tumid and much indurated, was felt facing the lower edge of the symphysis pubis. The whole body of the womb was so tender, that she instantly screamed from the most trifling pressure on it; and when she attempted to walk, sit, or stand, she felt the greatest difficulty and pain. Her pulse was quick, small, more feeble than hard; and, during the night, she had several times been attacked with severe vomiting.

Being satisfied that neither urine nor feces were retained, for as to the former the catheter was introduced, my first object was to guard against inflammation. But ere ℥viii. of blood were drawn from the arm, my patient fainting, I was obliged to desist. I then endeavoured to allay the pain by fomentation and opium. With the view of reducing the morbid bulk of the uterus, I had recourse to the pills already mentioned, composed of calomel and opium. As she felt easiest when lying on her belly, or leaning on her knees and elbows, I strictly enjoined these postures, and forbid every thing but gruel and panado.

I left her with the expectation of her soon becoming relieved; and, the day following, was glad to find her comparatively easy. The uterus, nevertheless, remained *retroverted*; and, although less tender to the touch, was not perceptibly diminished in size. The irritation on both rectum and bladder were still distressing; and the *os uteri* felt so hard, that Dr King, who this day saw her with me, was inclined to suspect, notwithstanding the girl's youth, the presence of scirrhus. He judiciously suggested the application of leeches to the external parts, and approved of the continuance of the calomel and opium. Ten leeches were applied, some within, and all in the neighbourhood of the vulva; the bleeding was full, and kept up for several hours; but alteration in the size of the uterus did not immediately become apparent, although it could be pressed on with considerable freedom.

On the 4th day from the commencement of the pills, the gums became slightly tender. The uterus still retained its malposition; yet it felt somewhat flaccid, and perhaps might have been replaced. The tenesmus and dysuria, in two days more, had almost subsided; and so well did she feel herself, that it required no small persuasion to dissuade her from leaving bed. The pills, at proper intervals, were continued so as to keep up a trifling irritation on the gums. And on the 16th day from the time I saw her, the uterus, although perhaps a little heavier, felt nearly as free and buoyant as in the healthy unimpregnated state. No discharge was at any time perceptible.

These cases have brought to my recollection a third, which I imagine to have been similar; although, at the time, certainly not understood. Having no notes of the case, I can only vouch for its general features.

A woman, of a feeble appearance, and about 50 years of age, laboured under general pain of abdomen, hiccup, vomiting, and a most distressing tenesmus, with inability to pass any thing but a little mucus. Her pulse was quick and feeble; her belly was considerably distended; but no particular urinary complaint. By account, her complaints had come on suddenly, had been present for several days, and had become gradually more extensive, in point of pain of abdomen, which at first was confined to the lower part.

The case was considered as one of constipation; and purgative after purgative was accordingly exhibited. They seemed to operate tolerably well, but all to no purpose; the symptoms continued urgent; severe and frequent was the unavailing tenesmus; and yet the *imagined* collection of feces could not be expelled.

The rectum was ordered to be examined. This was done by another gentleman and myself. The gut was found empty; but encroached on by a tumour, which, *per vaginam*, was discovered to be the uterus, so tender to the touch that the woman complained grievously on its being pressed.

We were then, it must be acknowledged, but novices in the touch so necessary in such cases; yet conceited enough to solve the state to our own satisfaction. We never thought of questioning the above view of the case; and we readily supposed that accumulation of feces, with the strong and repeated bearing down present, would easily produce a falling down and tenderness of the womb!

On mentioning the *procidentia* to the physician, it was deemed immaterial. The patient, however, gradually sunk; and, on the 4th or 5th day from her admission into the hospital, was cut off by that insidious enteritic affection, which, I fear, will generally be found to baffle our utmost efforts.

Inspection exhibited the intestines generally inflamed; no where adherent to each other; but covered, in many places, by a shreddy coating of lymphous exudation. No feces were found in the intestines, as was predicted, but plenty of wind; and, to our surprise, no uterine tumour was found to encroach on the rectum; although we did remark the womb to be rather fuller, softer, and darker-coloured, than was common. I may add, that I distinctly recollect the tenesmus to have ceased fully 30 hours before the woman's decease.

OBSERVATIONS.

1. *Nature of the Disease.*—The occurrence of retroversion, I consider, is to be looked on as an accident, superadded to an altered state of the uterus previously existing; yet so suddenly and so alarmingly did this accident change the features of the complaint, that it required the most decided notice, and demanded the promptest assistance.

I am anatomist enough to know, that, in the healthy unimpregnated state, *retroversio uteri* cannot possibly take place; or, if it can, it certainly never could be productive of the distressing symptoms detailed in the two first cases. We know it occasionally to happen in early pregnancy. It has been reported, too, sometimes to take place in enlarged scirrhus uteri; also to accompany some states of diseased ovarium; and, in Mr Astley Cooper's Treatise upon Hernia, notice is taken of a fatal case which occurred to Dr Marcet, where, for six weeks, vomiting and constipation were the prominent symptoms; and, on inspection, the uterus was found retroverted without pregnancy—the fundus being turned into the space between the rectum and vagina.

In the cases before us (I allude but to the two first), that retroversion did exist, will not be denied; and there is proof sufficient, that no malignant disease affected the uterus of either. Further, that the uterus was enlarged, there can, I think, be as little doubt; and if so, could it be from any thing but simple chronic inflammation? In the first case, that disease and enlargement subsisted in the uterus, long before the retroversion took place, appears from the absence of the menses, the irritation of the bladder, the weakness of the back, and the uneasiness in the groins, which were present fully three months before the accident occurred. In the second case, from the lochial discharge having so prematurely ceased, the probability is that the uterus had never, since delivery, become fully reduced. The frequent inclination to pass water seemed proof of this; and this increasing, together with the uneasiness in the back and groins, afford at least presumption of preternatural irritation going on.

In such a state, then, do I believe the uterus of both patients to have been. Their rank in life requiring daily exertions, would not only prevent the abatement of the disease, but very likely assist in its progress. Accidents of various kinds might force the fundus below the promontory of the sacrum, from under which it could not be supposed easily to extricate itself, especially as the dysuria and tenesmus, instantly produced, inevitably must have excited that involuntary bearing down, which would not merely increase the malposition of the uterus, but, as it were, impact it into the cavity of the pelvis.

According to this view of the case, the uterus was already inflamed, or, if not strictly so, in such a state as to render the accession of inflammation both easy and almost instantaneous, from the new, and, as it were, strangulated position it had acquired, this position acting as a powerful source of mechanical irritation upon an organ already under morbid excitement; so that neither the suddenness nor violence of the attack seem incompatible with the *natura morbi* I argue. The extreme tenderness of the uterus, and the quickness of the pulse, seem to have arisen from the inflamed and irritated state of the former; while the tenesmus, dysuria, pain of back, groins and thighs, appear attributable to the mechanical irritation on the parts contiguous, from the womb's morbid bulk and malposition. As to the analogy the third case is supposed to bear to the two first, I would remark, that the suddenness of the attack,—the pain of abdomen, at first confined to the lower part,—the vomiting,—the severe and frequent tenesmus,—the rectum being encroached on by a tumour, which, *per vaginam*, was discovered to be the misplaced uterus so remarkably tender to the touch, are all circumstances at least strikingly suspicious. But what, it will be asked, had become of this uterine tumour on inspection? This, however, in place of being subversive, is the very fact I consider the case chiefly valuable for. Of its existence during life, we were positively certain; but the inflammatory action on the peritoneum having become more general, the same degree still existing in the uterus, was probably incompatible with the delicate state of the woman's constitution. Resolution therefore in part took place, permitting, as was noticed, the tenesmus, fully thirty hours before death, to cease; and, on inspection, exhibiting the womb only rather fuller, softer, and darker coloured, than was common.

Such cases are certainly rare. My reading is not so extensive as to say where similar are to be found; but it strikes me I am acquainted with a species of uterine disorder not unlike the state described in the two first cases previous to the occurence of retroversion, meriting serious attention on account of its own importance; and, if my suspicions be correct, the cases above narrated will teach us, in a prophylactic point of view, to be especially active.

The *obliquitas*, the *dislocatio*, the *procidentia*, and the *dolor uteri*, seem all modifications or degrees of the same complaint; some arising from pregnancy, some from malignant, and others, as in the present, from benign enlargement of the uterus.

I have frequently known cases about the age of puberty, but especially in prostitutes and married women, where, besides symptoms of general irritation, an uneasiness or pain in the back, lower belly, and thighs, a frequent inclination to pass water, with a straining on doing so, and sometimes a difficulty of walking, suddenly sitting down, or rising up, have been complained of. In some, these symptoms are accompanied with a transparent and colourless, and in others with a yellow-coloured, mucous discharge from the vagina; but seldom without any. I have stated such especially to occur in prostitutes and married women. I will not take it upon me to say what the exciting cause may be; yet I am satisfied that, in such cases, a tenderderness of the womb does in certain circumstances exist more or less. The above set of symptoms, moreover, are not unfrequently met with in women who have risen too soon after delivery; and it is an observation as old as the days of Hippocrates, that one cause of a falling down of the womb is, "*coitus brevi post partum.*"

It was but of late I learned to appreciate justly the nature of these symptoms; and, from experience, I have no hesitation in stating, that in the majority of such cases, the uterus will be found more or less preternaturally dependent; the cervix, to the feel, somewhat elongated; the *os tincæ* more contracted than in health; and, in general, pressure will excite pain. A person requested me to visit his friend, who laboured under pain in her loins, lower belly, groins, and thighs, dysuria, and a disrelish for her trade, from the pain she experienced; had no appetite for her food, and she was distinctly feverish. On examination, I found the womb, as nearly as I can describe, as above. But, in a few days, a small bleeding, strict confinement, a few doses of calomel and opium, with the hip-bath, completely established her recovery. Two years ago I was consulted by a respectably married woman, who for nine months had more or less complained of symptoms similar to the above; with the addition of a difficulty of walking, or suddenly sitting down. She had used many remedies with but temporary benefit. From my questions a good deal coinciding with her feelings, I was readily permitted to examine *per vaginam*; when the uterus was felt distinctly heavier, both tender and depressed. The same treatment as above was had recourse to; the calomel and opium longer persisted in; and the husband seriously advised to keep apart. In about three weeks her complaint left her, and has never since returned.

Such, then, seems to be the nature of the affection alluded to. As to a name,—if that irritation of the bladder, approaching to slight inflammation, and attended with increased mucous excretion, be entitled to the appellation of *Catarrhus Vesicæ*, why should *Catarrhus Uteri* be denied to this?

As causes—Puberty, recent delivery, period of menstruation, and fluor albus, may be considered predisponent; and inconsistent exercise, excess of venery, cold, all sources of local irritation, and perhaps sudden cessation of the menses and fluor albus, as exciting.

2. *Diagnosis.*—What has already been remarked, may in a great measure supersede detail on this point.

First, It may be confounded with pregnancy. The uneasiness of back, belly, and thighs, the dysuria, and painful walking, may be common to both; but, in the latter, there is generally no discharge, and seldom the uterine pain and tenderness alluded to. The uterus, in both, may have descended somewhat; yet, in pregnancy, the os uteri is turned more backwards, and both it and the cervix for a considerable time feel natural. In very early pregnancy, the distinction will very difficultly be decided on; but fortunately in both, the same treatment will equally avail.

Secondly, It may be confounded with more serious and intractable states of the uterus, as scirrhous and other malignant affections. The progress of these is more slow; the pain is not dull and constant, but shooting, occasional, and severe; the *os uteri* is generally more open, and often apt to bleed on trifling freedom being used; the time of life will assist; and the colour and expression of the countenance are too often indicative of the nature of the disease.

Finally, the state of the uterus will distinguish it from *all* abdominal and bladder affections. Where retroversion has occurred, proper attention to the malposition and extreme tenderness of the womb will sufficiently characterize it from threatened abortion.

3. *Treatment.*—From my observations on the nature of the disease in question, three indications would seem readily suggested.

First, To arrest the inflammatory action by low diet, evacuants, and bleeding.

Secondly, To allay the irritation by fomentation and opium.

Thirdly, To reduce the morbid bulk of the uterus by blisters, stimulating embrocations, strict confinement, and mercury.

Should the symptoms be trifling, a little confinement to the horizontal posture, spare diet, laxity of the bowels, the hip-bath, and, above all, abstinence from venery, will generally soon effect a cure. But should the symptoms be more urgent, especially if attended with fever, in addition to the above, bleeding, either locally or generally, must not be omitted. Again, should the slightest tendency to, or actual retroversion have occurred, we have to consider the case of a most serious nature; we have not only to remove the local inflammation, but to guard against its extension to the bowels. Yet the pulse seems to counterindicate the lancet! But why do we ever bleed in inflammatory affections of the stomach and bowels? It is because we know these organs to be so essential to the well-being of life; that when, by inflammation, their functions are impaired, health of the general constitution does not only remarkably suffer, but there seems, as it were, such a tendency to speedy dissolution, that the depressing cause must instantly be removed. And do we not likewise know that there are other organs, which, although not so immediately connected with life, are exceedingly liable to sympathize with those parts which are? Such are the lungs, the testes, and, I would add, the uterus, which, when diseased, very soon, or at times, immediately acquire a similarity in symptoms, especially in the quickness and lowness of the pulse. With the same propriety, therefore, I would urge, that in the present case, blood should be drawn, according to the duration of the complaint, and state of the patient's constitution —bating, of course, such a lowness of the pulse as may be indicative of death.

As to reducing the malposition by manual assistance, I feel satisfied, that, in cases so acute as those recited, it will generally be found impracticable. Nay, from the extreme sensibility of the uterus, such attempts may prove seriously hurtful.

Purgatives, when the symptoms are violent, I should think generally injurious, as tending to increase the tenesmus and bearing down; but where they are indispensable, small and repeated doses of the neutral salts, castor oil, and injections, as being less irritating, should alone be employed.

The hip-bath, in the form of heated water or vapour; the free use of opium, especially *per anum* or *vaginam*, will be found strikingly serviceable in allaying the local irritation.

With the view of preventing a relapse, by reducing the morbid bulk of the uterus, confinement to the horizontal posture must be strictly enjoined, and perseveringly continued, according to the obstinacy of the symptoms. But for this purpose, mercury must especially be relied on. In the form of calomel, it is perhaps the most convenient and speedy in its effects; and, by conjoining it with opium, the constitutional and local irritation are not only quieted, but (to speak figuratively) the bowels protected from the acrimony of the metal—a matter in this case of no small moment. Slight mercurial irritation is all that is desirable. As soon, therefore, as it appears, the medicine should be omitted, and small doses of neutral salts frequently given to prevent salivation. It is again, however, to be had recourse to and persisted in, till no indications for its continuance remain, which, in some more chronic cases, will not occur till the lapse of several weeks.

Of the utility of diuretics, I am doubtful; and unless the bladder participate in the neighbouring irritation, becoming painfully sensible to the acrimony of the urine, hence requiring this secretion to be rendered bland and inoffensive, I am rather of opinion the more this organ be kept at rest the better.

Glasgow, February 1822.

IV.

Case of Ovarian Dropsy successfully removed by a Surgical Operation. By Dr NATHAN SMITH, Professor of Physic and Surgery in Yale College, Connecticut; and transmitted, at his desire, by JOHN D. WELLS, M. D. Professor of Anatomy and Physiology in BoudoinCollege, in the State of Maine.

THE subject of this operation was Mrs Trowbridge of Norwich, Vermont, aged 33 years. The following account of the case, previous to the operation, was taken from the patient.

Several years before, she perceived a small tumour, situated in the right iliac region, which, when about the size of a goose egg, she could move with her hand to the opposite side of the linea alba, and to some distance above the umbilicus. She had born five children, two previous, and three subsequent, to the discovery of the tumour. The youngest child was ten months old, and was nursed at the breast when she submitted to the operation. Soon after the first pregnancy which succeeded the appearance of the tumour, and when, as she thinks, it was four or five inches in diameter, it suddenly disappeared, probably from having burst into the abdomen. In four or five weeks, it was as large as before. Before and after the bursting of the tumour, she suffered from fits of faintness, which lasted from two hours to half a day. During parturition of the next child, the tumour, having acquired a considerable size, again burst; and nothing was perceived of it for eight months. It was burst a third time by a fall, which was succeeded by great soreness of the abdomen, and confinement for several weeks. It filled again in a fortnight, and from this time continued to increase. It did not burst in the delivery of the last child, ten months previous to the operation.

The patient's general health was not much affected. She was costive; and the size of the tumour incommoded her in the ordinary duties of her family, especially in those which required stooping.

On examination, I found a large tumour in the right side of the abdomen, which was movable to a considerable extent, and in which a distinct fluctuation could be perceived.

Having decided on the operation, and determined the mode of operating, on the 5th of July 1821, in the presence, and with the assistance, of Drs Lewis, Mussy, Dana and Hatch, I commenced the operation as follows.

The patient being placed on a bed with her head and shoulders somewhat raised, an assistant pushed up the tumour to the middle of the abdomen, and held it there. I then commenced an incision about an inch below the umbilicus, directly in the linea alba, and extended it downwards three inches. I carried it down to the peritoneum, and then stopped until the blood had ceased to flow, which it soon did. The peritoneum was then divided the whole extent of the external incision. The tumour, now exposed to view, was punctured; a canula was introduced, and seven pints of a dark-coloured ropy fluid were discharged into a vessel. About one pint was lost, so that the whole was about eight pounds. Previous to puncturing the tumour, by introducing the finger by the side of it, I ascertained that it adhered for some extent to the parietes of the abdomen, on the right side, between the spine of the ilium and the false ribs. After evacuating the fluid, I drew out the sac, which brought out with it, and adhering to it, a considerable portion of omentum. This was separated from the sac by the knife; and two arteries, which we feared might bleed, were tied with leather ligatures, and the omentum was returned. By continuing to pull out the sac, the ovarian ligament was brought out; it was cut off; two small arteries were secured as before, and the ligament returned. I then endeavoured to separate the sac from its adhesions to the parietes of the abdomen, which occupied a space about two inches square. This was effected by a slight touch of the knife at the anterior part of the adhesion, and by the use of the fingers. The sac then came out whole, excepting where the puncture had been made, and I should think it might weigh between two and four ounces. The incision was then closed with adhesive plaster, and a bandage applied round the abdomen. No unfavourable symptoms occurred after the operation. In three weeks the patient was able to sit up and walk, and has since perfectly recovered.

I was induced to undertake this operation from the following considerations. The patient, although her health was not greatly injured, was sensibly affected by the disease. She was quite certain that the increase of the tumour in a given time was augmented; and probably, at no very distant period, it would destroy her. I had also had an opportunity to dissect the body of a patient who had died of ovarian dropsy, after having been tapped seven times. In this case, the sac was found to be the right ovarium which filled the whole abdomen, but adhered to no part except the proper ligament, which was not larger than the finger. I have seen two other ovarian sacs which were taken from patients after death; they had been tapped several times, and the sacs were equally unattached except to their own ligaments. Thence I inferred, that in a case of ovarian dropsy, while the tumour remained movable, it might be removed with a prospect of success; and the event has justified my expectations.

The mode of operating in the above case has been described in several of my last courses of Lectures on Surgery.

N. B. The author, at the time of reporting the above case, was ignorant that Dr Dzondi had proposed the attempt to cure ovarian dropsy by the introduction of a tent after puncture, that the dropsical sac might slough, and be withdrawn by forceps.—See *Medical Recorder*, Vol. III. p. 63.

Edinburgh, 26*th August.*

V.

Case of Puerperal Fever. By J. Moir, Surgeon, Edinburgh.

Mrs R——n, aged 28, was safely delivered of her first child on the 19th June 1822, at 3 o'clock, *p. m.* The infant had presented by the breech and feet; but was born alive, the feet having been easily brought down. She continued well that evening in every respect.

On the morning of the 20th, it was found, that notwithstanding her having passed a tolerable night, the pulse was feeble, though not frequent; and her general appearance was that of a person fatigued or oppressed. The uterus felt somewhat harder than usual, but was not pained upon pressure; and yet on tightening the bandage, she complained of slight pain in the belly, which seemed to arise from flatus in the stomach and bowels. The lochial discharge was quite natural.

About 2 o'clock *p. m.* of the same day, she had a shivering fit, accompanied with much pain and tumefaction of the abdomen, and a dull heavy pain in the forehead. On visiting her very soon after the accession of these symptoms, her countenance appeared pale, and expressive of the greatest anxiety; her breathing was short and frequent, but not laborious; her skin hot; pulse 120, weak, and easily compressed. The depression of spirits was so great, that every movement was performed with reluctance; and she was even averse from answering the usual questions respecting her feelings. Her abdomen was greatly swelled, and she complained much when an endeavour was made to tighten the bandage; and on two several attempts at doing so, she vomited a little phlegm, and felt faintish; but it appeared that the chief seat of uneasiness was in the uterus and right iliac region. When perfectly quiescent, the pain could be tolerated without complaining; but the least movement of the body, or pressure on the part, rendered it excruciating.

An ordinary clyster was immediately administered, by which two full costive and fetid evacuations were procured. Such was however the exhaustion, that it was necessary to allow a small quantity of wine both before and after the exhibition of this remedy. A cordial mixture, as stated in the note, was now prescribed. *

At 10 *p. m.*, she was again visited. Considerable relief had, for a time, followed the evacuations from the bowels, but the pain in the abdomen had not abated; the headach had rather increased; the pulse beat 130, and was small and fluttering. The cordial medicine was directed to be continued; a drachm of the tinct. hyoscyami to be instantly taken; and an enema to be administered, if the pain should increase.

On the 21st at 9 *a. m.*, the symptoms appeared much aggravated, the pulse being 140, and small though equal; the breathing short and hurried, and the cheeks a little flushed; while there was a deadly paleness over the rest of the face. The eyes had an expression of great wildness, and appeared as if suffused with tears; the tongue was white, but without much thirst; the heat of the skin greater than natural; the pain of the forehead unabated, and the abdomen was considerably swelled. The night had been very restless, though a little relief had followed the operation of the enema, which had produced three evacuations; there was no pain in the thorax, and the lochial discharge continued to be natural. A dose of castor oil was directed to be immediately given, while the cordial medicine was continued.

At 4 *p. m.* it was found that manifest relief had been experienced from three alvine evacuations, accompanied with the discharge of a considerable quantity of flatus; but the state of the pulse and of the other symptoms were not altered, while the debility appeared to be increased. Two glasses-full of wine with panada, were now advised to be given in the course of three or four hours, besides continuing the use of the cordial medicine.

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* ℞ Tinct. ammon. arom. Spt. æther. nitros. Tinct. valer. vol. āā ʒii. Ess. menth. pip. gr. xxx. Syrup. simp. ℥ss. Aquæ ℥ss. Sig. a tea spoonful for a dose.

When again visited at 11 *p. m.* of the same night, the alarming symptoms appeared aggravated, although the pain and swelling of the abdomen were considerably lessened; for the pulse beat 150, and was so feeble, that the slightest pressure of the finger on the radial artery rendered its pulsation imperceptible; the debility of body, and dejection of mind had greatly increased; and there was no secretion of milk. The lochial discharge, which was of a pale colour, seemed natural. There was no appetite for food, nor any desire for nourishment of any kind. In addition to the panada with wine, she had also had, during the day, a little beef-tea. The cordial mixture was directed to be continued, and she had also a draught containing a drachm of the tincture of hyoscyamus, with twenty-five drops of laudanum.

On the 22d all the symptoms appeared more favourable, she had slept during the fore-part of the night, and had perspired freely towards morning; the pain of the forehead and of the abdomen was greatly relieved; the swelling of the belly was much diminished; there was less depression of spirits, though the bodily debility continued; the pulse was 130, and stronger; the tongue appeared to be cleaning at the edges, and the lochial discharge continued as on the preceding day. The use of the cordial medicine was suspended; a moderate dose of castor oil was ordered, and wine to the extent of three glasses-full during the course of the day, with panada and a small quantity of beef-tea, were advised; the anodyne draught to be given at bed-time.

It was found, on the morning of the 24th, that she had had a good night; the tumefaction of the abdomen had entirely subsided, and there was no longer any pain on pressure; the pulse was reduced to 80, though still very feeble; the lochial discharge was proceeding naturally; the secretion of milk appeared to be commencing; and for the first time the patient expressed a desire to see her infant. From that period her convalescence went on regularly; she was able to suckle her child, and is now in good health.

On this case it may be permitted, I hope, to offer a few reflections.

The shivering, the pain and tumefaction of the abdomen, the pain over the forehead, the anxiety and pallidness of countenance, the uneasy breathing, the feebleness and progressive frequency of the pulse, there being no secretion of milk, and the continuance of the lochial discharge, unequivocally show that this disease was the malignant puerperal fever described by

Hulme, Doublet, and other respectable authors. The only discrepancy was the state of the evacuation from the bowels; for it was not like yeast, as has been commonly observed. But, according to the records of the Edinburgh Lying-in Hospital, more than one of nine patients affected with that disease, in winter 1814-1815, had not that symptom, although the appearances on dissection showed incontestably the nature of the case.

Knowing that my old preceptor, Dr Hamilton, Professor of Midwifery in the University of Edinburgh, declares, that he had never seen in the course of his practice more than two cases of the malignant puerperal fever among the better ranks of society, and that those cases had not occurred in Edinburgh, I was at first doubtful of the true nature of Mrs R.'s indisposition; but the more I reflected upon the subject, and the more anxiously I attended to the symptoms of the case, the more was I persuaded that the indications of cure to be pursued were, to allay the irritation of the intestinal canal, and to support the strength. Indeed I can truly affirm, that, in the course of twenty-three years practice, I had never previously met with any instance in either sex, or at any age, where such debility of pulse accompanied local pain, aggravated by pressure; and if I had never heard a lecture upon the subject, I should have been convinced that the subtraction of a very few ounces of blood would have rapidly sunk the living powers of this patient.

Some circumstances, which it is unnecessary to detail, had, however, led me to form a decided opinion upon this subject; and every year's experience had induced me to believe, that the cases recorded by Dr Gordon of Aberdeen, Dr Armstrong of Sunderland, and Dr Hey of Leeds, &c. which they supposed to be instances of malignant puerperal fever, and which yielded, under their care, to the very free use of the lancet, were cases of a different disease.

It must strike every practical man, that the general description which these gentlemen have given of the symptoms of the epidemic which they attended, is positively and circumstantially contradicted by the detail of the individual patients which they have added by way of illustration. In all of the cases in which these gentlemen succeeded, the pulse beat from 120 to 140, and the lochial discharge was suppressed at the very commencement of the disease,—symptoms which, I do not hesitate to affirm, no intelligent practitioner of respectability ever met with in a real case of malignant puerperal fever.

It is quite unnecessary to point out the distressing consequences of misnaming a disease. The contradictory opinions in the treatment of the yellow fever in the West-Indies, have done much to open the eyes of the profession on this point; and it is to be hoped that those practitioners who, in the early part of their life, have fancied that they have cured the puerperal fever by blood-letting, will, when their opportunities of farther observation and reflection become more extensive, candidly and openly retract their opinion, for the guidance of the younger members of the profession, and for the benefit of the lower ranks, who are the chief subjects of the disease in question.

Tiviot-Row.

VI.

Observations on the Good Effects of Oil of Turpentine in Puerperal Fever. By HENRY PAYNE, M. D., Nottingham.

DR CAMPBELL, in his Observations on the disease usually termed Puerperal Fever, published in the Edinburgh Medical and Surgical Journal for April 1822, says, "that it becomes the duty of every practitioner, who may have been at all successful in treating it, to communicate the results of his practice to the profession." It is in compliance with this maxim, that I feel myself called upon to state the result of the experience I have had in the management of this disease, which has been attended formerly with so much fatality. Indeed the puerperal fever has, within the last fifteen years, raged with its usual violence in many parts of this kingdom, and particularly in the West Riding of Yorkshire, when but very few of those attacked by it escaped. Before the publication of Dr Brennan appeared, recommending the oil of turpentine in puerperal fever, I well recollect that the practice of blood-letting was usually had recourse to; but, as far as my own observation went, there was certainly less success attending it than appears to have followed the application of the same remedy in the cases detailed by Dr Campbell. After reading Dr Brennan's work, I was glad to try a fresh remedy for puerperal fever, because I had seen so little good result from venesection, which, although it was, in the practice I had an opportunity of observing, used early in the disease, and carried to as great an extent as was practised by Dr Campbell in the cases he has favoured the profession with, not more, to the best of my recollection, than one patient was saved, who appeared to get well, as the saying is, "in spite of the Doctor." It is now nearly eight years since I was called to visit a female who laboured under this disease; when the surgeon, who had only seen the patient a short time before (she having been attended in labour by a midwife), proposed the exhibition of the *oleum terebinthinæ*; which was assented to, and it was given in doses of half an ounce every two hours. The effect was a very copious discharge from the bowels, appearing to consist of serous fluid tinged with green, in which were seen floating numerous pieces of white matter, like coagulable lymph. Soon afterwards, the patient became maniacal, and continued so for several days, when her intellects were restored, and she gradually recovered. Since that period, I have seen many cases of puerperal fever, one of which had been attended some days by a surgeon, who had discontinued his visits. I believe she was not bled. The friends of this patient seeing that I had an unfavourable opinion of the case, called in a more experienced physician, and it was agreed to try the turpentine as a last resource. Two drams of it were prescribed every two hours, which soon brought on a purging of a matter of the like nature, as before mentioned. I stated, that in one case, mania had taken place after the exhibition of the turpentine, which was probably given in too large doses, thereby producing a determination to the head; two drams were therefore agreed to be given, and the physician in attendance with me, a gentleman of long experience, and in great practice, I well recollect, said, that it was an unfortunate circumstance that the turpentine had not sooner been thought of, for if it had, great numbers of females might have been saved.

Although this patient was in *articulo mortis* at the time of the exhibition of the turpentine, she recovered very quickly; and the same success has attended the treatment with turpentine of every case of puerperal fever that has within the last seven or eight years fallen under my care. It appears to be somewhat extraordinary, that no mention of the turpentine is made in Dr Campbell's cases. I think I can venture to assure that gentleman, that if he will try this remedy fairly, no matter whether it be early or late in the disease, his practice will be accompanied with more success, and that instead of losing four patients out of fifteen, he will find they will all recover. I am anxious that the experience I have had in the treatment of puerperal fever with turpentine should be made known, because I tremble for the consequences that are likely to happen from the use of the lancet, so strongly urged by Dr Campbell. I agree with that physician, that the disease in question is of an inflammatory nature; but do not think with him, that women in childbed are able to support the loss of blood better than on any other occasion. I believe they are then less able to bear it; and my experience teaches me to believe, that bleeding is not at all necessary in the disease called puerperal fever, however severely the system may be excited by it. Whether early or late in the disease, the turpentine, when properly administered, avoiding at the same time every thing that is likely to prove irritating, will effectually remove every symptom of the complaint, which it appears to do, by augmenting the secretions into the intestines, to an extent proportionate to the amount of the inflammation, whether affecting the uterus and its appendages, or the peritoneum. The bowels are as quickly and as powerfully excited to action by the turpentine as the vessels which open into them; and the profuse discharge that takes place does certainly, according to the experience I have had in puerperal fever, more quickly and effectually relieve the patient of her sufferings, than either bleeding or any other remedy. If the turpentine, as it appears to do, caused a vast secretion of fluid and lymph into the bowels, is it not, by this operation, likely to relieve the inflamed vessels of the neighbouring parts of great part of their contents; and will they not therefore be as efficiently emptied as if local bleeding had been applied? The immense discharge from the bowels, by the use of the turpentine, never occasions those secondary symptoms that I have seen follow the extensive use of the lancet, which are even more to be dreaded than the disease itself, one of which is a sort of agitation of the vascular system, such as I cannot describe; during the continuance of which, I am of opinion those effusions take place into the cavity of the abdomen, which are almost invariably followed by death. The enlarged state of the abdominal nerves, as observed by Dr Campbell in his dissections, is an important discovery, and proves, that that part at least of the nervous system had been greatly excited; and, notwithstanding "the superabundance of blood that may be circulating in the system after parturition," this discovery will teach me to prefer the turpentine in puerperal fever to bleeding,—a remedy which, there is much reason to fear, will aggravate that affection of the nerves, that gives rise to symptoms which it is out of our power to control.

Nottingham, July 16, 1822.

VII.

Observations on the Treatment of Purpura Hæmorrhagica, with an Account of the Effects of Ol. Terebinthinæ *in some Cases of that Disease.* By Whitlock Nicholl, M. D. Ludlow.

Having just read the reports of two cases of purpura hæmorrhagica recorded in the last Number of your valuable

Journal, each of which terminated fatally, I am induced to trouble you with this communication.

In each of these cases venesection was employed, rather in compliance with the recommendation of Dr Parry, than in consequence of the presence of any symptom which indicated the necessity of depletion; for " there seems to have been no increased action of the heart or vascular system;" but the cause of the universal hemorrhage appears to have been, as you (Dr Duncan junior) observe, " a sudden relaxation of the mouths of many extreme vessels," or " an increased tenuity of blood." The treatment, you remark, must, in the uncertainty of the pathology of this affection, be " perfectly empirical, and almost fortuitous." The remarks, however, which you have made respecting the pathology of this affection, lead to something better than empiricism in the treatment of it, and suggest the grounds upon which a rational mode of treatment should be established. From your own analysis of the modes in which this affection can occur, it is evident, that venesection is warranted only by the fourth cause which you have assigned for the presence of this malady, namely, " increased impetus of the blood;" excepting in such of those cases under the fifth head, in which the " obstruction in the vessels" is the result of an overloaded state of the vascular system. In all the cases which come under the first, second, and third heads, venesection appears decidedly to be contra-indicated. In those cases under the fifth head, which are referable to obstructed states of the viscera, as of the spleen or liver, the removal of the obstructed state will form the leading indication, and, in such cases, active purgatives will be powerfully efficacious. So far, then, we have rational principles to guide us in the treatment of cases of purpura hæmorrhagica; for we learn in what cases to resort to blood-letting, and in what cases to employ purgatives. These principles will guide us positively and negatively; they will indicate the adoption of Dr Harty's plan in some cases; they will point out the necessity for adopting Dr Parry's plan in other cases; while, in other cases, they will show the inefficacy of these means; or they will teach us that such means must be prejudicial. So far, then, we have rules to guide us in *all cases* of this affection. What, then, are we to do in those cases which come under the first, second, or third heads of your analysis? Here, I would beg leave to call your attention to the brief notice of two cases which I have published in the London Medical Repository for July 1821. In each of these cases, there was an absence of every appearance which could call for the employment of venesection; in neither of them was there any appearance of visceral congestion; but the cause of the affection seemed to be referable to general want of tone in the extreme vessels. This view of the first of these cases induced me to employ the oleum terebinthinæ, which, from its diffusible nature, seemed well calculated to produce a salutary effect upon the minute vessels. You will see, from the report of the case, that I exhibited this remedy freely, and with a most satisfactory result. The second case presented the same indications, and the same remedy was resorted to with a similar result. I have since had under my care a poor child, whom I began to attend on the 1st of December last. She was at that time two and a half years old. Her mother had, some days before she brought her to me, observed that the child was covered with small red points like flea-bites. These, to use her expression, "turned one night to be purple spots;" her mouth and gums and tongue were sprinkled with similar spots, and a small quantity of blood passed in the stools. The whole extent of the skin was thickly beset with these spots. The mother observed, that "the child faltered" when these appearances presented themselves. The child was pallid and languid; there had been no obstruction in the bowels. I ordered for her the following mixture. ℞ *Ol. Terebinthinæ* ℥iss. *Syr. Sennæ* ℥ss. *Aq. font.* ℥i. The third part of this mixture was directed to be taken three times a day. From the 1st to the 11th of December, she took eight of these mixtures; the spots gradually died away; but, as she appeared languid, I ordered for her a six-ounce mixture, composed of decoction of bark with mineral acid. In March last the child was again brought to me, the purple spots having again appeared over the whole body. She was ordered to have recourse to the same terebinthinate mixture as before; and, in a few days afterwards, this medicine was exhibited alternately with the bark and mixture. This plan was persevered in with greater or less punctuality, according to the state of the child, until the second of June. She is at this time apparently free from disease. She has taken, in the whole, seventeen of the terebinthinate mixtures, and six of the bark and acid mixtures.

These are the only cases of hæmorrhagic purpura which I have met with since I adopted the ol. terebinthinæ as a remedy in such cases. I had previously met with two cases, neither of which appeared referable to increased impetus of the blood, to plethora, or to congestion. In one of these, bark and acid was exhibited; in the other, venesection was employed. Both cases terminated fatally. I regret that I had not then thought of administering the sp. of turpentine in such cases; but my treatment was, in those cases, founded purely on the empirical rules laid down for the treatment of this affection.

I think, then, that the treatment of cases of purpura hæmorrhagica may be reduced to something like rational principles, aided by the knowledge, that a remedy does exist for some at least of those cases in which venesection is not admissible, and in which the mere purgative plan is ineffectual.

However trifling may be the observations which I have troubled you with, I well know that you will pardon me for presuming to submit them to you. They are in themselves of little or no value, but they may serve as hints for the more successful management of an affection which has so frequently defied the most zealous efforts of the physician.

Ludlow, 13*th July*, 1822.

VIII.

Case of Aneurism, in a Native of Hindostan, successfully treated by Ligature. By JAMES ADAM, M. D. Assistant-Surgeon, H. C. S.

RUJUB KHAN, Mussulman, sepoy, 1st Battalion 29th Bengal Native Infantry, apparently about 30 years of age, of a tall and stout make, and good constitution.

18th March, 1819.—Babye, Valley of the Nurbudda, on the march from Garrurwarra to Betool.—Soon after the march to-day, he made his appearance at the hospital-tent, complaining of pain and weakness in his left leg, which rendered him unable to proceed.

On examining the limb, I perceive a small circumscribed tumour in the ham, about the size of a pigeon's egg. It is of the natural colour of the skin, and quite soft, and a pulsation may be distinctly felt within, corresponding to the beat of the heart and arteries. In the artery behind the internal malleolus, the pulse is feebler than in the other limb. Pressure, continued for a short time over the tumour, causes it to disappear; but the instant the finger is removed, it returns to its original size. There is no pain in the tumour itself; but he complains of pain immediately below it, about the heads of the gastrocnemic muscle, with an uneasy sense of tightness, which sometimes extends to the middle of the calf. He dates the occurrence of these sensations from the day he crossed the Nurbudda, about a month ago, soon after which he first perceived the swelling in the ham. On his arrival at Garrurwarra, he was admitted into hospital on that account; but the surgeon in charge did not particularly examine the limb, and in a few days he returned to his duty. Since then, the symptoms have never been severe till this morning, when the continued exertion in walking during a march of eighteen miles made him lame, and obliged him to fall behind. He can assign no cause whatever for the occurrence of the pain or swelling; has no recollection of having received a blow or strain which could occasion either of them; nor was he ever affected with a similar swelling in any other part of the body; has no other complaint; his appetite is good, and his sleep at night undisturbed.

After satisfying myself in these several points, I could entertain no doubt as to the nature of the swelling. The pulsation plainly told that it was aneurismal, and the situation in the ham made it equally certain that it proceeded from the main trunk of the artery. I resolved on merely keeping the limb quiet for some time, and watching the progress of the case. A *dooly* (or *palanqueen*) was ordered for him, and he was enjoined not to walk, or move the limb on any account; and to relieve the uneasy feeling in the leg, some camphorated oil, with opium dissolved in it, was directed to be gently rubbed in over the pained parts and calf of the leg occasionally during the day, but no application whatever to be made to the tumour itself.

After some days, finding no change in the size of the tumour, and the pain continuing to affect him, notwithstanding he had strictly adhered to the injunction laid down in regard to rest, &c., I determined on trying the effects of compression. I was led to this from considering, that in the lax system of a native, such a mode of cure would have a better chance of success than in a European subject, and that, in all probability, my patient would not consent to another operation, were it proposed even under circumstances of much greater urgency than at present existed. A compress of a triangular figure was placed in the ham, with its base downwards, and so folded as to cause the greatest pressure to be not on the tumour, but over the artery immediately above it. Another compress, of a cylindrical shape, was then laid on the fore and upper part of the thigh, in the course of the femoral artery, and a roller bound tightly over these. By this means I hoped to be able to check the flow of blood in the vessel, and to excite a degree of inflammation in the aneurismal sac, which would occasion an adhesion of its sides, and render the canal impervious. At first, the application of the bandage gave no farther uneasiness than what resulted from the tightness; but in a few hours he complained of pain in the ham and leg, and some feverishness was induced. The pain of irritation increasing, on the following day the compresses were removed from the limb, when a considerable change was observed to have taken place in the state of the tumour. From being circumscribed, it had become diffused over the whole ham; the parts around the knee-joints were swollen, hot, and painful, and the leg downwards was affected with a considerable œdema. He was thirsty and extremely restless, with a quick, hard pulse; and all the symptoms present indicated inflammation. To a certain extent, this was obviously necessary for bringing on the change in the condition of the tumour, which was ultimately to lead to its cure; but the constitutional irritation was now so great as to make me apprehensive that I had exceeded the just limit of excitement. I did not think proper, however, to bleed, as he was considerably reduced, and leeches could not be procured, the camp being then distant from any village. After the full operation of an aperient dose of neutral salts, I ordered a large opiate, with antimonial wine, to be given him, and the thigh and leg to be kept constantly wet with a solution of superacetate of lead. On the 26th, or the second day after the application of the tight bandage and compresses, the detachment reached its destination at Betool. The swelling, œdema, and general irritation continued equally severe as on the preceding day, and my patient appeared in great distress. The bowels were again opened, and opiates given internally at night, and a watery solution of opium was applied to the tumour, along with the goulard. This gave him much relief, and procured sleep, which he had not enjoyed since the pressure was first applied. By the 29th, the œdema of the leg was greatly gone, while the tumour in the ham continued undiminished. In the situation of the *original* swelling, the parts had become hard and slightly discoloured, apparently from coagulated blood; they were also painful on pressure; and on applying the finger with some force, a pulsation could be felt, but very indistinct. Besides the general tumour in the ham, there was now also a tense, elastic swelling, of a circumscribed form, immediately over the inner condyle of the femur, which appeared to arise from the more fluid contents of the former having forced their way under the tendons and fascia, and been afterwards confined by them. There appeared still room to hope that a favourable change might be brought about by the formation of a coagulum, and the adhesive inflammation closing up the artery at the site of the disease—at least there was no immediate danger of the tumour bursting; for the discoloration on the surface did not proceed from any disposition to sphacelus, but appeared to be caused merely by the general pressure on the cuticular vessels, in which opinion I was confirmed by Mr Assistant-Surgeon Stevenson, of the 10th Madras Native Infantry, who happened to pass our camp on the morning of the 29th, and did me the favour to look at my patient. By the evening of the 31st, however, the tumour had increased so much, and he suffered so severely from pain and irritation, that I determined to perform the operation of tying the femoral artery as soon as practicable. The danger of the case being fully explained to the sepoy, and the risk attending the operation, he was perfectly resigned, and agreed to submit to any thing I might propose for his relief. As our camp was to be moved to the distance of some miles on the 2d April, I was reluctantly compelled to wait two days longer; and on the morning of the 3d, the operation was performed. At that time the tumour had no perceptible pulsation; the parts around the knee-joint were swollen, hot, and painful on the slightest pressure; and he complained of a very disagreeable burning sensation all down the leg; he was thirsty and restless, and his appetite for food quite gone.

With the native doctors of the corps for my assistants, I made an incision in the upper part of the thigh, commencing at the point where the sartorius muscle crosses the artery, and terminating within an inch and a half, or two inches, of Poupart's ligament. The cellular membrane, and part of the fascia, being divided and dissected off, the sheath of the vessels came into view, and the artery could then be felt distinctly under the finger, like a hard cord, or an injected vessel in the dead subject. It was more perceptible from this than its pulsation, which could only be distinguished on making a degree of pressure. The sartorius muscle being very slightly turned aside by the point of the finger, a scratch was made on the outside of the artery, and the sheath divided on the director upwards and downwards. The vessel was then laid bare, and separated from its surrounding connexions with the blunt point of the director, and a thin spatula to the extent of an inch and a half. In accomplishing this, notwithstanding the utmost care, a small lateral vein was wounded with the former instrument, which luckily gave no trouble, as the hemorrhage instantly stopped on the application of the sponge. Two ligatures being introduced with the bent eye-probe under the vessel, were each carried close to the point where it emerged from the sheath, and tied tightly, the figure of the noose having no obliquity. The artery was then divided on the director, in the middle of the denuded space between the ligatures, when the upper portion retracted a little. Not the slightest hemorrhage occurred, with the exception of that from the vein. Adhesive straps were applied, and a pledget of lint, with four loose pieces of roller over the whole, crossing each other in the manner of the eighteen-tailed bandage.

The progress afterwards is as follows—

3d Evening.—Pulse quick; he complains of a burning sensation in the leg; otherwise is free from uneasiness, but looks exhausted.

4th Morning.—Slept pretty well during the night, and has no complaint of the limb; tongue rather furred white; pulse still quick and feeble; no hemorrhage from the wound.

Noon.—Has had two natural motions of the bowels since morning; complains now of a burning sensation, particularly affecting the foot and ancle; no swelling there; his appearance good; on applying the finger to the leg, the sensibility is found equal to the other.

Cream of tartar water and infusion of tamarinds for drink; and, in place of the goulard lotion, tepid vinegar and water to be applied to the limb.

Evening.—Has been very ill, and vomited two or three times; complains of pain and uneasiness in his throat, and pain in the wound; countenance anxious; pulse quick and hard; tongue much furred.

Take immediately sulphate of magnesia ℥ss., to be repeated every hour and a half till the bowels are freely moved.

5th.—He took three doses of the salts, and had also a glyster administered; the bowels have been freely moved in the course of the night, and he is now more tranquil and cool; pulse slower and softer; tongue still white, but not loaded; the uneasiness in the throat gone; has slight pain in the wound, and a sense of burning or pricking in the leg; is very weak from the operation of the salts, which still continue to move him.

Take immediately a draught of 50 drops laudanum and 40 antimonial wine.

Evening.—Is very uneasy at this moment; complaining of the burning sensation being excessive in the heel and sole of the foot, and also of pain in the wound. These feelings have only come on within this hour and a half. During the day he did not sleep any, but was free from pain; pulse quick and hard again; matter has been discharging from under the dressings. On removing them, I found the lips of the wound separated, with a plentiful secretion of good looking pus, but no gape. Close to the ligatures it appeared hollow; granulations good; no hemorrhage. The dressings were more loosely applied than before, and the draught repeated, with the addition of some paragoric elixir.

6th.—Passed a bad night, complaining of the pain and burning in the leg; pulse not so quick, but still hard; no motion of the bowels since yesterday morning.

Take of castor oil ℥i.; and, if no stool after two hours, a glyster to be administered. Sulphuric acid water for drink at pleasure.

Evening.—The oil operated powerfully; complains of being very weak, and appears rather irritable in consequence; has drank a good deal of the acidulated water through the day; and now, for the first time, feels hungry. Tongue moist at the edges, and less furred than in the morning; pulse not so quick or hard. A slight vesicular eruption has made its appearance under the lower lip, indicating a favourable change; slept a good deal in the course of the day; but is now uneasy from the sensation in the heel and foot.

Apply a watery solution of opium to the pained part.

7th.—Passed a bad night from pain and burning in the heel; no swelling of the foot; the œdema of the leg quite gone; and the tumour in the ham softer and diminished in size, and free from pain; matter from the wound to-day slightly tinged with blood; granulations beautiful; pulse 80, still somewhat hard; no thirst; now very hungry.

Chicken broth to-day.

Evening.—He says he has no feeling in the inner half of the foot. To my hand, the parts are warm, and the circulation does not appear defective.

8th.—The discharge less copious, without any tinge of blood. The numbness continues in the foot; and the skin may be pinched without his feeling it in the inner half.

Flannel roller with camphorated spirits to the limb.

15th.—The wound has continued to close daily, and the quantity of pus to diminish in proportion. The tumour in the ham is greatly reduced, and now feels soft, without pulsation; but the elastic swelling, situate over the inner condyle, remains in the same state; and I cannot perceive any diminution in its size from the date of the operation. Complains of the pricking or *sleeping* sensation in the limb.

Strong solution of muriate of ammonia to be applied to the elastic tumour.

18th.—Omit the lotion, and rub in camphorated oil with mercurial ointment.

21st.—The ligatures have been gently pulled these three days, but they continue to adhere firmly; the discharge much lessened; and the wound closed, excepting at the point where the ligatures protrude. The tumour over the inner condyle appears, for the first time, diminished in size, and possesses less elasticity; in the ham, the parts are soft and compressive when the fingers of both hands are applied at one side over the tumour on the condyle; and at the other, between the biceps tendon and the bone, a sense of fluctuation is perceived on the slightest movement with either. General health now excellent.

22d.—The upper ligature came away with the dressings to-day, the knots containing a whitish slough, the remains of the denuded vessel. The foot is slightly œdematous.

24th.—The other ligature came away to-day; swelling and œdema almost gone.

I left Betool at this time, but heard of my patient some weeks afterwards; when the tumour in the ham had nearly disappeared, and the cure might be considered complete, a degree of stiffness remaining in the joint, which it was hoped motion and moderate exercise of the limb would speedily remove.

I have been thus minute in detailing the above case, as aneurism is a disease of rare occurrence amongst the natives of India; and capital operations are seldom resorted to in them, unless in emergency from wounds or accidents. As far as my own limited experience goes, they are very averse to the use of the knife; yet no people bear operations with more fortitude, when they have once determined on them, or recover under circumstances so little encouraging. During the whole progress of the cure, Rujub Khan was lodged in a common sepoy's paul, or open tent, exposed to an intensely hot wind, which was then blowing, and only sheltered from the meridian sun, by the thin canvass, and an imperfect shade afforded by a low stumped tree, under which it was spread. The state of the limb too, at the time of the operation, was certainly not favourable to its success; but no alternative remained to me; and had it not then been performed, I question not he would have soon fallen a victim to the mere constitutional irritation caused by pressure on the joint and the adjoining nerves. In performing the operation as described, I followed the practice of Scarpa, and made the incision higher on the thigh than is generally recommended. By so doing, it was not necessary to carry the knife deep into the cellular substance; and no embarrassment occurred from the sartorius crossing and concealing the vessel. Situated as I then was, with only a native for my assistant, any plan which promised to shorten, or render simpler, the operation, possessed more than common claim to notice; and I had every reason to congratulate myself on the choice.

Calcutta, 25th August, 1821.

IX.

Extract of a Letter from Dr Zitterland, *Physician appointed by the Prussian Government for the district of Strasburg, to the Royal College of Physicians of West Prussia at Dantzig, regarding an extraordinary circumstance of a Child crying in the Womb,* 48 *hours before it was born.* Transmitted by William Lister, M. D., London.

TO THE EDITORS OF THE EDINBURGH MEDICAL AND SURGICAL JOURNAL.

GENTLEMEN,

The case which accompanies this, was transmitted by Mr Alexander Gibson, a highly respectable merchant at Dantzick, with whom I am acquainted, to his correspondent in London, with an intimation that it should be put into my hands. It had been received by Mr Gibson from Dr Kleefeldt, the head of the Medical Board in the province of West Prussia, in which Dantzick is, with a request that he should transmit it to a medical person in London, in order that it might be made known there. Doctor Brunatti, a physician residing at Dantzick, translated it.

In favour of the truth of the statements in this case, I will only observe, that it is hardly possible to conceive that Doctor Zitterland, a witness and the writer of the case, could have been deceived; and that there can be no doubt that his narrative was credited by Doctor Kleefeldt, who caused it to be transmitted to England, and by Doctor Brunatti, who took the pains to translate it.

Such cases, I suppose, are extremely rare; because after inquiring of my medical friends, one of whom is a physician eminent for his anatomical knowledge, and long engaged in extensive practice; and another, a physician distinguished by his knowledge and skill, and very long experience in the obstetrical art, I have not heard of any practitioner of midwifery in London who has met with one similar; and because, I believe, that the similar ones on record are regarded, whether truly or not, by most practitioners, as fabulous.

If you should concur with me in thinking the case deserving of publication, I shall be much obliged to you to give it a place in your very useful and well conducted Journal.

I have the honour to be, Gentlemen,
Your very humble servant,
Wm. Lister, M. D.

Lincolns-Inn-Fields, July 8, 1822.

Mrs B—— had, before my arrival at this place, about four years ago, been thrice delivered regularly, twice prematurely, and had two abortions. Since my arrival she has given birth to three more children, perfectly matured and well formed; but, to her great grief, only the youngest boy has survived, none of her other children having reached their second year. Grief so often renewed, had made a deep and permanent impression on the mind of this lady, who lived in a perpetual anxiety when any thing unusual affected her little boy.

Under this state of mind, she felt herself once more pregnant. Notwithstanding that she was subject to many of the inconveniences and sufferings incidental to this state of body, still her mind remained more than usually serene, as her little boy recovered and remained in good health. Her anxiety, however, soon returned, occasioned by an evacuation of water just after the child had given indications of life in the womb. She now lived in the continual fear of a miscarriage. Every means were used to diminish her fear, and to comfort her; and in this state she approached the time of her delivery. According to her reckoning, she was about four or five weeks from the same, and had great hopes of a safe delivery, although the evacuation of water still continued.

About this time, her little boy fell sick and was for many days in danger. This incident affected her very much; he however recovered, and her mind was occupied by more pleasant ideas. On the 25th July 1821, being fine weather, she enjoyed the fresh air for the first time for some weeks. On returning home, she had the misfortune to stumble, and, though she did not fall, she retired to her bedroom very much frightened, which was followed by another considerable evacuation of water.

I was now called, and found Mrs B. very pale and feverish; her pulse was languid and irregular, and, though she did not complain of any pain whatever, yet she felt herself unusually feeble, and had sometimes a drawing sensation in the loins and back. I endeavoured to quiet and comfort her—ordered her to bed—to drink chamomile tea, and her body to be rubbed with *unguentum nervinum* (made with aromatics and antispasmodics). This treatment, together with the assurance and hope that a miscarriage would be averted, produced a favourable effect. After a few hours, all the bad effects of the fright seemed to be over; but the child began to make some unusually violent motions.

In order to dissipate the cares of the lady as much as possible, the supper-table was brought into the bed-room as usual; she herself desired to eat; all at once the company present were alarmed by the cry of a child. The little boy was not in the house; the cry seemed to be that of a new-born child, under the bedcover of the sick lady. Mr B. and the midwife both thought that the lady had had a sudden and quick delivery. Every person present was therefore desired to quit the room, when the midwife made haste to be assured of the truth. But what was her surprise when she found no change, much less a new-born child, and heard repeatedly the cries of a child in the womb!

As I lived in the same house I was immediately called, and came in time to hear the cries of the infant distinctly and repeatedly. Illusion was here impossible, as no other child was either in the room or near it. A cat, which sometimes produces sounds resembling those of a child, was not in the house; besides the sound, as mentioned before, distinctly came from the womb of the patient. After a time it desisted. Mrs B. assured us, that though she heard the cries as well as any present, she had no unusual feeling. On examination by the midwife, it was found, that neither the situation of the child, nor the mouth of the womb, indicated an early delivery. The lower part of the womb (neck?), however, had quite vanished.

Mrs B. being very much weakened by this occurrence, I ordered her a cordial mixture, by which, by degrees, she felt herself much strengthened, so that on the 26th July, the pains in the back and loins ceased. The motions of the child, however, had ceased for some time, and, though they came in the following day again, they were but very weak.

In the morning of the 27th July, she felt the first labour pains, which soon increased more and more; but the birth of the child advanced slowly. She was delivered at 6 o'clock in the evening, when a considerable discharge of water took place, without any rupture in the enclosure (membranes?) of the fœtus having occurred before the birth.

The new-born child gave a few weak tones, and was then to all appearance dead, from which state it was with difficulty raised. It was very poorly nourished, and from the formation of its different parts, seemed to be about eight months old. Its voice became weaker, till about half an hour after its birth, when it died.

Many cases of children crying while still in the womb have been related; but, to the best of my knowledge, most physicians believe it can only be during a lingering delivery, or during the birth of the child when the head has fallen deeper into the pelvis. Hence, the above mentioned case seems to me to be worthy of notice, as it proves, that, even when the mouth of the womb is still closed, and the child not yet in the pelvis, the crying of the fruit of the womb can still take place forty-eight hours before the birth. To judge from the evacuation of water about the middle of the pregnancy, it may be well supposed that there had been some rent in the membranes, by means of which the air was probably introduced. From the foregoing, it may then be well comprehended how the child cried; but how it could live 48 hours in the confined womb, surrounded with water in an amphibious manner, is incomprehensible.

I am obliged to remark further,

1. That the constitution of the lady is naturally strong; but she is nervous, and easily irritated. Many disagreeable occurrences for some years have produced a weakness of nerves, which often destroys the balance between sensibility and irritability.

2. Those present when the child began to cry, were Mr B. his clerk, the midwife, a young girl of about 15 years, and two boys of nearly same age. On my arrival, I only found a married lady, the midwife and Mr B——, who all, as also the lady in the straw, heard the crying of the child, which was now more distinct, as the bedcover was then removed.

3. The situation of the child at the time of its crying could not be exactly determined; but it was born in a regular manner, the head having the due situation.

Strasburgh in Prussia, 3d December, 1821.

X.

A Description of a Singular State of Structural Disease of the Lower Extremities of a Boy at Arundel, Sussex. By J. Fosbroke, Surgeon, &c.

> "As fester'd members rot, but by degrees,
> Till bones and flesh and sinews fall away."
>
> Shakespeare.

During a visit which I made in May 1820, at a gentleman's seat near Arundel, Sussex, I was requested by a lady to see a lad, whose case appeared to me so singular, that a description of it, taken on the spot, may probably be deemed acceptable to the pages of the Edinburgh Medical Journal. The individual, named Thomas Sheppard, æt. 20, was affected four years from the preceding January, with the first sensible symptoms of local disease, save a general distress which he had always felt in the exercise of the hip-joint. The attack commenced by a general inflammatory swelling of the knee of the left leg, which was always painful at the articulation; the swelling extended downwards to the foot. After the night on which he was first seized, he retained no power of getting out of bed, or exerting progressive motion in any manner. The swelling of the knee suppurated, and his relations say about a gallon of pus was discharged from it. The thigh then became suddenly swoln. General enlargement of the whole extremity was now formed, and a train of phenomena of the most dreadful kind came on in succession. The hip-joint became obviously affected. Large and deep abscessess formed at the posterior part of the thigh, at the superior spinous processes of the ilium, and in the course of the spinous processes of the sacrum and lumbar vertebræ. Motion of the spine had become painful, and there seemed to be distortion. The abscesses were not merely confined to the course of the spine and the inferior extremities, but formed also about the shoulder-joint, scapula, and under the true ribs in each lumbar region, sometimes discharging thick pus, sometimes thin and light-coloured matter in great quantities. Large ulcerations made their appearance on the foot, attended with considerable discharges.

The right extremity was gradually enlarging in the same manner as the left. The course of the disease in the different textures of the limb appears to have been as follows. It first existed in a manner but little regarded in the hip-joint. The synovial membranes of the hip and knee-joints were seemingly inflamed (the kind of inflammation being specific); the ligaments, *bursæ mucosæ*, as well as the periosteal and medullary membranes of the bones, then assumed the same action. The muscles participated, though in a less degree, than the other structures of the limb; for their functions were still partially retained, and acted feebly, in very slight flexion and extension of the knee and ankle joints. The common integuments yielded to the same morbid changes as the other tissues.

In consequence of inflammation and gangrene of the periosteum and medullary membrane, large portions of the tibia and femur had exfoliated, and abscesses had formed, where the process of ulceration had afforded a passage for the removal of cylindrical portions of bone. Some portions were necrotic, and passed away covered with a bloody sanies. The cellular membrane and cutis were thickened; and effusions of the cuticle, in large brown crusts, covered the surface of these limbs, now of extraordinary magnitude. These scaly crusts, with the general dense enlargement of the integuments, gave some resemblance to the horny hide of the rhinoceros. The superficial veins, especially the *saphena major*, distended, but not varicose, and conspicuously blue, from the thinness of its coats, appeared wandering along the inner surface of the thigh. All contour was destroyed; and the size and deformity of the left leg exceeded that which is seen in cases of (the Barbadoes leg) elephantiasis. The enlargement of the right leg commenced with involuntary startings of the muscles, and the consolidation of ganglia about the hamstrings. No abscess formed in the knee of the right leg, as was the case in the left. The flexor muscles which pass behind the malleolus internus, had the power of granting a little motion, especially of the ankle, which was the least affected. The impotence of the muscles was not so much to be imputed to their concurrence in the disease, as to the state of the joints. The ligaments, and especially the integuments on the dorsum of the foot, seemed to have undergone the most complete alteration of structure. The *rete mucosum* was so deeply graven as to be remarkably well shown on the brown crusty effusions of the cuticle. There appeared to be no morbid change in the superficial or profound inguinal glands, nor the absorbents which lead to them. In my investigation I could not gather that the lymphatic system had any way participated in extending or receiving the disease. In the comparative condition of the muscles and other systems with those which were diseased, is there not some display of the difference of organic vital powers?

Ratio symptomatum.—This was a monstrous specimen of the extent of local disease, which may arise from that degeneracy of conformation and function of the systems of the body which constitutes scrofula. The patient has no remembrance of any exciting cause of the first attack, except being wetted through, going to bed, and, on the next day, wearing his wet stockings. He felt, on the first seizure, pain in the extremities, and extreme rigor, succeeded by proportioned reaction. The sudden manner in which change of structure was evolved, with the most formidable appearances, has led, I was informed, to its being first suspected to be rheumatic gout; but no remedy, no depletion, had any control over the disease. Large doses of opium scarcely mitigated the patient's nightly anguish. At the time when I saw him, all acute symptoms had subsided, and the state of the bodily functions was such as I shall now endeavour to delineate.

His appetite, at an early period of the disease, and while the puriform discharges were abundant, was a complete bulimia, but had abated. There existed occasional distension of the abdomen; but I had no reason to believe the positive existence of mesenteric obstruction. The disease, according to the manner of scrofulous affections, gains ground in the winter and autumn, the seasons of vicissitude, and improves in the summer. Even a variation in the temperature of his bedroom is most sensibly felt. When he takes cold, his body becomes oedematous all over; and after vomiting a green glairy fluid, probably a mixture of bile and mucus, generally during the space of three days, his health improves. He is subject to gravel; and his flow of urine has been occasionally obstructed by concretions of lithic acid, acting as plugs in the urethra. He has sometimes passed feces involuntarily. If the discharges from the ulcers are checked by compression, *his constitution immediately suffers*—a proof of the necessity of a vicarious action. His limbs are not now painful at all times, but by fits and starts, and during processes of exfoliation.

When I first went to this young man's bedside, I was struck particularly with the scrofulous physiognomy. The globe of the eye was full and dilated; the pupil large and glittering; the *albuginea* smooth and bluish; the skin fine in texture, and of a clear dusky paleness. But what is most extraordinary, his youth had been healthy and undisturbed, his appetite strong, his bodily health sound, and no remarkable affection had preceded his present state, except general pains of the joints of the inferior extremities. Notwithstanding the condition he was in at the period of my observation, the animal functions contended with much vigour against the progress of diseased action; but little nightly fever had yet displayed the influence of irritation; and life still afforded a probability of considerable duration, unless the breaches made by inflammation and disorganization, now menacing the spinal cord, should involve vital structures in no remote process of destruction. It is singular, that the most vital parts exposed had so completely escaped, viz. the muscles, arteries, lymphatics, and the sheath of the medulla spinalis. There was, from this cause, probably, as well as the nature of the morbid action instituted, less waste of the forces of life than in common psoas abscess; and if we could dissociate in our minds the feelings excited by the external appearances from the state of the frame, we might in reality consider it less formidable.

I found in all this family the lineaments of the scrofulous habit, and in some of the children such manifestations as enlargements of the cervical glands. I was told that a similar case had occurred near Arundel, and that the subject survived seven years. Another was represented to me to be existing in the immediate neighbourhood. It was not so; I found it a common hip-case, with displacement of the head of the thigh-bone on the *dorsum ilii*. Portions of the *ilium* and *femur* had exfoliated, the limbs were wasted, the hamstrings were contracted, and lumbar abscess had formed. No affection of the knee, of the integuments or other textures, existed; the skin was covered with redundant cuticle merely. The bodily health seemed good, but the temperatural susceptibilities were very animated. The case was of three years standing.

In the want of power of a part of the body to preserve its integrity of structure,—in the external appearance of the parts so spontaneously disorganized,—in the quiescent state, or rather apathy of the patient's mind, this case has points of resemblance to the tuberculated elephantiasis, eloquently described by Mr Robinson in the 10th volume of the Medico-Chirurgical Transactions; but they differ in many respects, especially in this circumstance, that the joints are *last* affected in the elephantiasis or baras, and primordially in the case which I have related.

The particulars given are liable to inadvertencies, in as far as the patient and his friends might be inaccurate in their replies to my questions; but no farther. My inquiries enable me to say, that scrofulous affections are more abundant on the southern coast than in more insular situations. This fact, which is conformable to the opinions of Sir Astley Cooper in his invaluable Lectures, argues for the reverse of local representations.

Edinburgh, March, 1822.

XI.

Case of Inflammation and Sero-Purulent Dropsy of the Kidney; with Observations. By WILLIAM HOWISON, M. D., one of the Surgeons to the Royal Dispensary, and Lecturer on Materia Medica and Pharmacy.

W. C. L. Esq., æt. 25, a medical practitioner of this place, enjoyed uninterrupted good health until the age of fifteen years, when he was attacked with severe pain in the region of the left kidney, accompanied with all the symptoms of nephritis. After an illness of considerable duration and severity, he gradually recovered, and again enjoyed apparently good health; although, after much fatigue, or exposure to severe cold, he experienced repeated attacks of pain, and symptoms of inflammation, always situated in the same place, the region of the left kidney, and gradually extending forwards towards the umbilicus. None of these, however, was so severe as to confine him for any period of time to bed, the symptoms always yielding to gentle purgative medicines and low diet.

About the beginning of February 1821, he had a very severe attack, which he attributed to exposure to excessive cold and fatigue in the pursuit of his profession. It commenced mildly; but, notwithstanding powerful remedies, in the course of a few days it reached to an alarming and dubious height. At this time, in addition to the hardness which was always present during the attacks of the disease, we could observe, by passing the palm of our hands and fingers over the seat of the pain, a peculiar sense of crepitation; a symptom which was not perceptible before. This particular appearance also took place in the attack of the complaint which proved fatal to him. He was freely bled, and gradually and partially recovered in the space of about six weeks. He then went to the country for some weeks; but he had repeated attacks whilst residing there. They were not of long duration, and always yielded to mild treatment, with little bleeding. During the summer, he lived almost entirely upon vegetable diet, milk, and fruit, which he found from experience to agree best with him; paying great attention to regularity of bowels, and certainly enjoyed considerable health. He now became lusty, and his countenance, which had been completely blanched by the copious bleedings, regained its usual florid appearance. At this period, he attempted to ride on horseback, but was immediately obliged to give it up, the trotting of the horse causing great agony, and increase of pain. During the months of August and September, he took long excursions, travelling in an open gig, and his health appeared to be completely reestablished. He returned home, and recommenced his business as a medical practitioner.

At this period he took a good deal of fatigue; and it was supposed that he suffered much pain, from being observed repeatedly to bend his body forwards for relief, although he would not allow it when questioned. One Thursday evening about the end of September, he went much earlier to bed than usual, complaining of fatigue. He rose next morning at 7 o'clock, and his illness commenced at 8. All the symptoms rapidly became aggravated, notwithstanding every means that were used, and continued until the Monday evening succeeding, when he expired. Dr Alison and I attended him as usual; and two days previous to his death, we were joined by Dr Duncan junior.

The symptoms, during all these attacks, were entirely the same in kind, differing only with regard to their intensity and duration.

The first and most distinguishing symptom was fixed pain, of a gnawing description, extending from the spine forwards towards the umbilical region, increased by pressure, aggravated by the slightest touch during the severity of the attack, and by different positions of the body. Of this latter circumstance he was particularly sensible at various periods, both during the repeated attacks of the complaint, and after their disappearance. He was often compelled, whilst walking, or in the erect position, to bend his body forwards, and remain so, to allow them to go off, and to alleviate the pain. During the later attacks of the disease, the pain was always most severe, and well marked forwards towards the umbilicus, anterior to the situation of the sigmoid flexure of the colon; and during its greatest severity only, did it extend backwards towards the spine. What was remarkable also was, that the pain in the umbilical region was always aggravated by the slightest pressure, or even touching it; whilst that backwards towards the spine, was greatly alleviated by pressure; and during the height of his suffering, even within a short period of his death, he repeatedly desired his back to be pressed upon by the expanded hand, and rubbed with warm flannel, to give support to it, and to alleviate his extreme sufferings.

In no case of a similar description, have I observed the sensibility to external cold so great as in this. When he attempted to rise, or when the bedclothes were in the slightest degree removed, which frequently took place during his tossing about in bed, or upon the application of leeches, so as to allow the contact of air to the pained surface, he could not bear the agony which it produced.

His urine, he observed at times to be small in quantity, and once or twice slightly tinged with blood; but it never was observed to be milky, or to contain any thing like pus. Latterly, however, as neither he nor his medical attendants had any suspicion that the kidney was the seat of the disease, he paid no attention to, nor remarked these symptoms to others. The evening previous to his death, however, he complained of not being able to pass his urine, it coming away in small quantity only, and he was afraid that he would require the catheter during the night. I directed warm cloths wrung out of water to be applied over the pubes, or to sit over the steam of boiling water, if he should feel any uneasiness. As he did not mention this feeling afterwards, I conceive he must have had no return; and the dissection proved that the bladder contained little urine.

His bowels were generally costive. During the greatest severity of the attacks, however, they always yielded to purgative medicines and purgative injections, although at times with some difficulty. Whilst labouring under constipation, his sufferings were always aggravated, and relief for a time followed every evacuation. During the state of health, or in the intervals of the disease, he paid great attention to this circumstance, living almost entirely upon fruit and vegetables. Upon every threatening of the complaint, and also during its severity, he made use of numerous injections of warm water thrown up the rectum, by means of an elastic gum tube; and from these he felt great benefit.

The pulse, at the commencement of the attack, was generally 84; but on the second and third days, as the disease made progress, and repeated and extensive bleedings became necessary, it gradually rose to about 120. It was, at first, strong and full, becoming more and more so as the bleedings were repeated; but, in the February illness, when the severity of the symptoms was about to yield, it became so soft, that the slightest pressure of the finger stopped it, and it could not be counted. During the attack which proved fatal, however, it never abated in number. The blood drawn certainly relieved the pain for the time; and it was always followed by an attempt at motion of the bowels. A day or two previous to death, what he passed was not fæculent, but gelatinous matter; and the passing of it was accompanied with most excruciating pain. I have seen the same repeatedly take place, in the last stages of diarrhœa and dysentery. The blood drawn was always buffy; and as the quantity increased, the buffy coat also increased. During the duration of his February illness, he lost above 130 ounces of blood; and during that which proved fatal, he lost nearly 150. A strong idea preyed upon his mind, that his complaint was spasmodic enteritis; that it would terminate in gangrene, and destroy him: he therefore insisted continually to be bled; and, previous to his death, he tightened the ligature, and bled himself during the night.

During the various attacks of the disease, even up to its fatal termination, he was not troubled with thirst; neither did he complain of rigors, or alteration of the pain, the usual forerunners of gangrene. His skin was generally moist, and bedewed with perspiration, increased by the copious use of diaphoretics, which were administered to him. His tongue was at times furred, but presented no particular appearance. The animated appearance of his countenance altered but little; neither did his cheerful flow of spirits sink during the severity of the attacks, until within a short period of his death. From having recovered so frequently, he did not (until within half an hour of the fatal event) believe that he was dying. His body never fell away to any extent in loss of substance, the attacks being of such short duration. A stranger viewing his corpse, could not have told that he had laboured under any severe or lasting complaint.

DISSECTION.

The body was examined by me, the morning succeeding to his death, in presence of Dr Duncan junior, Professor of Materia Medica, Dr Alison, Joint Professor of the Theory of Medicine, and several other gentlemen.

Upon dividing the integuments of the thorax and abdomen, there was found a considerable quantity of fat between the muscles and the skin; as much, or more, than is generally met with in a subject of his age.

Thorax.—There were some slight adhesions of the lungs to the pleura on the right side. The lungs exhibited no marks of disease, neither did the pericardium, which contained the usual quantity of water; nor the heart or large bloodvessels, with the exception of containing a much smaller quantity of blood than is usually found on such occasions.

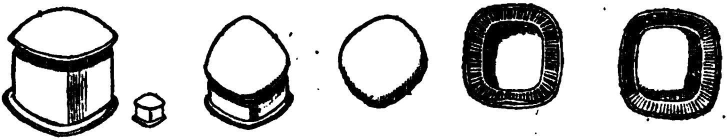
Abdomen.—Upon fairly exposing the cavity of the abdomen, every thing visible upon the first inspection appeared perfectly natural. The liver, upon being pulled down, had a blanched, white look; and, upon cutting into its substance, remarkably little blood exuded from the divided surface. In every other respect, this viscus presented a healthy appearance. The omentum was in its natural situation, and offered nothing remakarble. Upon laying back the omentum over the cavity of the thorax, the intestinal canal appeared in its natural state, but blanched. We commenced with the stomach and spleen, neither of which deviated in the slightest respect from the healthy structure; and then traced the canal throughout its whole extent. We observed nothing unusual, until we came to the sigmoid flexure of the colon, which was considerably thrown forwards from its natural position; and, upon drawing it forwards from its situation, a large, oblong, flat tumour, occupying the whole lumbar region and part of the ilium, lying behind the peritoneum, and evidently containing a fluid, presented itself to our notice. To have a proper view of it, we removed the alimentary canal completely from that side of the body, drawing it over towards the opposite one.

The tumour extended upwards towards the true ribs, and downwards towards the pelvis; backwards towards the spine, and forwards to within a little space of the umbilicus. It measured about a foot in length, and nine inches in its greatest breadth. It was of a reniform shape; the upper end, which was in contact with the diaphragm, being evidently broader than the lower, which descended into the pelvis. One of the flat sides lay upon the lumbar muscles, and the other was seen covered with peritoneum, when the intestines were drawn aside. The dorsum was convex, and was slightly marked by two notches, dividing it into three parts, or lobes. The inner edge was remarkable for the projection of a large conical bag, full of an apparently diaphanous fluid, of which the apex was towards the spine, and the base was received into the body of the tumour, which seemed to be the kidney, with its infundibula and pelvis greatly enlarged and distended. There was no remains of the fat in which the kidney is usually imbedded. By forcing our fingers completely round it, separating the cellular substance, dividing some indurated ligamentous bands by which it was connected to the surrounding parts by the knife, after considerable labour and attention not to rupture it, we found we could remove it completely from its situation, and that it included the kidney entirely within it. We tied and divided the renal vessels, (neglecting, however, the ureter, which we had unfortunately divided with the knife), when the kidney came out like an onion from its cell, leaving an immense cavity behind.

Upon placing the kidney in a basin to examine it more particularly, a little purulent fluid escaped, which made us think we had ruptured it. We found, however, that this proceeded from an orifice formed by the termination of the ureter in the pelvis of the kidney, which we had neglected to tie. The outer surface was whitish, smooth, and reniform. To the touch it gave the idea of hard masses, like scybala, contained in a bladder full of fluid. It was laid open by a longitudinal incision along the dorsum, which allowed between two and three pounds of fluid to escape. The tumour was now found to be formed entirely of the dilated kidney, the cortical and medullary part of which had disappeared, except a few small portions, leaving nothing but a cavernous cyst, consisting of the proper external membrane of the kidney and its internal membrane much thickened. It was divided into three large irregular cells (double circulo-cellular), freely communicating with the dilated pelvis, into the apex of which the ureter, of its natural size, opened. The doublings of the inner membrane, forming the septa, were hard, like cartilage with thickened edges; and its surface was in general smooth and dense, except in a few places, where there were small irregular ulcers with ragged edges.

The fluid did not possess the smell, taste, or any of the peculiar sensible qualities of urine, but was of a whitish colour, like pus diluted with serum.

On emptying the kidney, there was found upon the plate upon which it was opened a small calculus, of a very irregular shape and appearance, having some resemblance to a small rivet nail of copper, and which, on being tried, exactly fitted the orifice of the ureter. It may be described as having a body and two heads. The body was formed of a short quadrangular prism, with rounded edges, and its terminal planes inclining, and to each was attached, as if soldered on, a thin plate or head of the same quadrangular shape, but a little larger, so as to project beyond the edges of the prism. The colour of the body was between wax and honey yellow, and its surface shone with a vitreo-resinous polish. The surface of the terminating plates was yellow-grey, and less highly polished. Its weight was 1¼ grain; and the smallest of the subjoined figures represents exactly its size and form. Three of the other figures are magnified views of the entire calculus; and the two to the right show its internal structure partly. In handling it rather roughly, one of the terminal plates came off, and showed it to consist of a nucleus encrusted. The figure to the right of all is the terminal plate, having the middle part entire, smooth and concave, with the margin broken from the shell surrounding the body of the calculus, resembling striated spar, with scopiform fibres.



Dr Duncan junior, to whom I delivered the calculus for analysis, requested Dr Marcet, who was in Edinburgh upon a visit, to undertake it; from whom he received the following answer.

"I thank you for the little smooth *burnished* calculus. The external lustre is owing to its great smoothness, and to the surface being stained by some morbid secretion of the kidney or bladder. These circumstances occur most frequently in the case of lithic acid, but not exclusively so. In the present case, the calculus consists of oxalate of lime: it is in fact a smooth mulberry calculus. I return to you what remains of it, that you may satisfy yourself on the subject. You need only direct upon the smallest fragment of it the point of the flame of a candle, urged by the blowpipe. You will see it swell out and whiten the moment it is acted upon by the flame; and with a drop of dilute muriatic acid, and a drop of oxalate of ammonia, you will in half a minute satisfy yourself of its nature."

As we were now certain that the left or diseased kidney could not have performed its function of transmitting urine to the ureter and bladder, we anxiously proceeded to the examination of the right, or healthy one, which we found evidently enlarged, of a redder colour than natural, and distended with blood, from the increased action to which it was now subjected, or from its performing the duties of both kidnies, which it must have done for a considerable time. The ureter was also greatly enlarged throughout its whole length. The bladder was contracted, and contained little urine.

The details of this dissection illustrate many circumstances of our patient's complaints, of which, previous to death, we were completely ignorant.

1st, That inflammation existed at particular periods, accompanied with severe pain. That the seat of this inflammation was not the intestinal canal, nor the omentum, nor the peritoneum, nor the muscles of the abdomen, as imagined by his various medical attendants; but that it existed in the interior of the kidney, and arose from the ulceration there going on. That this inflammation was not of a spasmodic nature, but that it made its appearance with the various ulcerations which we there discovered.

2dly, That there were present swelling, tumour, and hardness, which did not proceed from air or crepitus in the intestinal canal, as described by Dr Abercrombie to exist in cases of inflammation of the viscera, nor from the commencement of gangrene, as several of us supposed; but that it was produced by the accumulation of a fluid within the sacs of the diseased kidney.

3dly, and *lastly*, That there was no probability of the patient recovering under the use of any medicine, external or internal; the only prospect of relief appearing to arise from puncturing the diseased kidney (if we could have conjectured the nature of the disease previous to death) by means of a canula and trocar introduced from the region of the spine.

XII.

Observations relative to the Action of the Heart in Fishes. By R. Knox, M. D., Edinburgh.

In 1817, whilst at sea, and between the tropics, the seamen, as is usual in long voyages, amused themselves in fishing for sharks, bonitos, dolphins, and other fishes, with which these seas abound. An opportunity thus presented itself of observing the motion of the heart in these cold-blooded animals, and of noting down at the instant the phenomena which take place when that organ is detached from the body of the fish. I may previously remark, that the sharks were uniformly taken with the hook; but that the bonitos, dolphins, &c. were often struck with a sort of harpoon.

The heart of the shark is comparatively small; the pericardium is exceedingly delicate, and not very easily seen; its existence, however, is evident on a very careful inspection. The heart is single, *i. e.* consists of an auricle and ventricle. The vein entering the auricle is large, and, on its internal surface, has much the appearance of muscular fibres. At the entrance of the vein into the auricle, and in the situation of the eustachian valve in man, there is a considerable membranous duplicature, of a circular form, and composed of two portions: the lower portion is the larger of the two. The heart of a shark about three feet long was removed from the body of the fish shortly after it was caught. The heart showed remains of vitality, by the contraction of its cavities for several minutes. When these motions were not interfered with, and the heart allowed to lie undisturbed on the table, its cavities were seen to move and contract themselves in regular succession, commencing *always* with the vein, which was seen first to move; next followed the creeping, vermicular, tremulous action of the auricle; and lastly, the violent, powerful, convulsive-like action of the ventricle, by which this cavity was raised considerably from the table, and its point thrown towards its base. These motions succeeded each other with great regularity; and though, as life gradually became extinct, the auricle sometimes moved without a corresponding contraction of the ventricle, *the contrary of this never happened.*

The motions observed in the heart of a shark six feet in length, did not differ materially from those described above. In another also, taken from a shark about six feet in length, the ventricle did not contract, but remained soft. Many drops of blood were visible, effused over the surface of the ventricle, beneath the smooth transparent investing membrane. I now became anxious to ascertain several points more minutely than I had hitherto been able to do; and, particularly, 1*st*, that regarding the motion so observable in the vein; 2*d*, the regular succession of action commencing uniformly with the vein, a phenomenon so unexpected; and, 3*d*, the motion of the ventricle.

I began therefore with the motion of the venous trunk; and on looking very attentively into the auricle by the venous orifice, I perceived the valve or duplicature corresponding to the eustachian valve in man, contract extensively, and apparently cut off all communication betwixt the vein and auricle. This contraction of the valve was immediately followed by a corresponding motion in the auricle. These motions were observed during a succession of several minutes.

When the vein or auricle was touched with the finger, point of a pen, needle, or other hard body, it immediately contracted, or, in other words, *moved;* for we cannot speak with propriety of the contraction of a cavity, the parietes of which lay flaccid for want of a distending fluid. The motion induced in the auricle by the application of any stimulant, was followed by a violent convulsive contraction of the ventricle; but the application of the finger, or needle to the ventricle, did not in any instance excite the organ to action. On the finger being pushed into the vein, the motions of the auricle were instantaneous, of rapid succession, and strongly marked; and this continued for a considerable time.

In all the hearts examined, excepting one, the ventricle, during its contraction, raised itself quite up from the table in a most remarkable manner. I suspended the heart by the pulmonary artery, and found that, during contraction, the point apparently approached the base of the heart, in consequence of which it raised itself up, unaided, towards the fingers. The space it moved through was considerable.

It would be interesting to compare these observations with a few fashionable opinions regarding the motion of the blood, and of the heart, in living bodies; but my present avocations do not allow of sufficient leisure for that purpose. I shall therefore conclude, by detailing a few circumstances regarding the anatomy and physiology of the heart of the bonito.

In latitude 13° 17″, and longitude 28°, the bonito fish appeared in great numbers around the vessel; several were struck with the harpoon, and so taken. The appearance of the heart in these fishes will be readily understood even by those unacquainted with comparative anatomy, from the following brief description. A vein, or venous sinus, terminates in a thin but completely muscular auricle, whose parietes lay collapsed, and must be raised up and separated, in order to prove the existence of a considerable cavity. A well-formed auriculo-ventricular valve is present, cutting off the reflux of blood from the ventricle to the auricle. The former is shaped like a horse's hoof, and is exceedingly thick and muscular, formed so, no doubt, to give to the blood a *momentum* sufficient to overcome the elasticity of the bulb or pedicle of the pulmonary artery. The pericardium is firm, wrapped loosely round the heart, and including within its cavity the bulb of the artery. The great vein running into the auricle is exceedingly delicate; though examined carefully with a magnifier, no valve corresponding to the eustachian in man could be discovered. At the entrance of the vein into the auricle, a number of circular fibres seemed to form themselves into a valve. The pulmonary artery, or rather its bulb, though of a fibrous structure, is evidently not muscular; in no instance was it seen to move, nor was it affected by any stimulus. From the number and appearance of its coats, it must be highly elastic, and capable of reacting strongly on the blood propelled into it by the heart. The four portions into which the heart of the bonito may be divided are totally dissimilar to each other, the structure of the great vein being quite unlike that of the auricle; whilst the ventricle and pulmonary bulb neither resemble each other, nor any other part of the heart. Finally, there is no gradation of structure, as some have supposed.

On removing the heart of the bonito from the thoracic cavity, the auricle continued to move for some time, but the ventricle ceased its contractions instantly. When the heart was allowed to remain in the body, though exposed by opening the thoracic cavity and pericardium, both cavities continued to contract or move for some time. During the relaxation of the ventricle, it felt soft to the touch, and firm during its contracted state. Soon after death, the ventricle became permanently firm and contracted.

Edinburgh, June 25, 1821.

XIII.

On the Simple Treatment of Syphilis. By SAMUEL HILL, M. D., Member of the Royal College of Surgeons, London, and Assistant Surgeon to the Forces in North Britain.

THE variety of opinions and doubts which physicians occasionally entertain regarding the truth or fallacy of certain doctrines, often lead to investigations, the results of which are interesting to those engaged in them, and not unfrequently productive of public utility.

The treatment of syphilis without the employment of mercury, which has for some years occupied the attention of the medical profession, especially of the medical officers in the Army and Navy, has led to the knowledge of facts which tend to support the belief, that mercury, while in certain circumstances and cases it may be useful, is not essentially necessary to the cure of that disease; and that, as far as the experience of many army medical officers, during a period of six years, will seem to warrant the inference, all the forms of syphilis are curable without the use of that remedy.

Since the first introduction of syphilis into Europe, about the latter end of the 15th century, it has claimed much of the attention of the medical profession, and occasionally that of the public, not only on account of the dreadful ravages which at that time in particular, and on numerous occasions since, it has been observed to inflict, but also on account of the variety of controversies regarding its nature, and the powers of different remedies which have been at various times suggested as being the most efficacious in combating or removing the disease.

Although the remedies tried have, in their turn, enjoyed the temporary reputation of possessing considerable powers and virtues, either in mitigating or altogether removing the virulent effects of syphilis, no one of them has so repeatedly or successfully possessed, or for so long a period maintained that character, as mercury; whose virtues, as an antisyphilitic remedy, have been highly extolled by a considerable number of the ancient, and nearly all the modern writers on this disease; and, notwithstanding many authors acknowledge the baleful effects of this medicine, yet, until very lately, it was considered by every one of the present day to possess specific virtues in the cure of syphilis.

We find, however, according to the learned Astruc, that the question concerning the utility of mercury in the cure of syphilis was debated early in the 16th century; and at that time several very eminent men were decidedly of opinion that it was unnecessary.

For fourteen years, I was instructed in the belief that syphilis was not to be effectually removed from the constitution without the aid of mercury; and, until the latter end of 1816, I used that remedy in all cases of this disease. In December of that year, I witnessed, and first assisted in that mode of treatment, a description and the results of which I propose to submit in the following pages. Since that period, these results have been so favourable as to induce me to continue this practice, and to entertain almost implicit confidence in the powers of the constitution, aided by less powerful remedies than mercury, to resist the influence of the disease; and, until I shall be convinced that the antiphlogistic treatment of syphilis is inconsistent with the health or safety of the individuals intrusted to my care, I think I shall be fully justified in the continuance of it.

The general history of this mode of treatment in those cases which have been placed under my care, with such facts and observations that have during the time presented themselves to my notice, I shall treat of under the following heads:—

Description and Treatment of Primary Symptoms.

Description and Treatment of Secondary Symptoms.

Observations and Opinions respecting the Efficacy of this Treatment.

Of Primary Affections.—By the primary affections of syphilis, are understood those local effects which are at first engendered by the application of the morbid poison of syphilis to some part of the body; and as this application generally takes place in sexual intercourse, the parts of generation are its usual seat; and only through the medium of these effects (except when the disease is engendered *in utero*) can the constitution become contaminated.

These effects are gonorrhœa, ulcer, or chancre, and, according to some authors, bubo; while others believe the latter affection to be an intermediate symptom between the local and constitutional disease.

Of the first affection, I do not mean to take particular notice, farther than to observe, that Mr Hunter believed that it was of the same nature as syphilis, while he adopted an opposite mode of treatment in each; and Drs Balfour and Duncan senior in this country, and Professor Tode in Germany, conceived gonorrhœa to arise altogether from a distinct poison from that of syphilis.

Of Ulcer or Chancre.—An assemblage of certain characters in an ulcer situated on some part of the organs of generation, which ulcer has followed impure sexual intercourse, and does not show any disposition to heal without the use of mercury, is agreed, amongst authors, to distinguish the syphilitic from every other species of ulcer. These characters have been described by Mr Hunter; and were by him, as well as many other experienced men, believed to be the unerring marks of the truly venereal ulcer.

But while I name Mr Hunter, which I do with the greatest respect, and admiration of his talents and genius as an ardent investigator of the operations of nature and the phenomena of disease, yet I cannot help (though with the greatest diffidence) offering some reasons for believing, that his observations, in regard to the appearances and progress of syphilitic ulcers, have been in some degree founded in error; and that, from the authority of his high abilities, and the celebrity of his name, a too implicit reliance has been placed in the correctness of his opinions, and justice of his conclusions.

These characters of truly syphilitic ulcers appear to me to be fallacious, because they are not exclusively those of, or essential to, a syphilitic ulcer.

For, 1*st*, Ulcers on the genitals, arising from any other cause than that of syphilitic infection, occasionally, and very often, do present an assemblage of more or fewer of those appearances which have been considered as characteristic of a truly syphilitic ulcer.

2*d*, Ulcers on the genitals arising from impure sexual congress, present a variety of appearances in different individuals, and in different parts of the same individual, at the same time, according to the texture of the part or parts on which the ulcer or ulcers are situated, according to the age, temperament, disposition, habit of the individual, or according to the degree of attention to, or neglect of, cleanliness, which has been previously paid by the infected person.

3*d*, Those ulcers alone which are possessed of such an assemblage of characters which are said to distinguish a syphilitic ulcer, except that of not having any disposition to heal without the use of mercury, although these ulcers should be accompanied or followed by buboes, which may have been removed without the use of mercury, are not alone uniformly followed by constitutional symptoms.

4*th*, Ulcers arising from impure connexion, and which present every variety of appearance and character, from the simple elevated, to the excavated and indurated ulcer, with uneven and everted edges, are occasionally observed to be followed by constitutional infection; although, in many cases, these ulcers have neither been accompanied nor followed by bubo.

5*th*, Ulcers on the genitals, whether arising from impure sexual intercourse, or from any other cause, are frequently observed to change their appearance and character during the progress of the treatment, according to the peculiarity of disposition in the patient, the degree of constitutional irritation present, or that which is sometimes locally produced by certain remedies applied to the sore.

And, *lastly*, By certain caustic or escharotic substances applied to simple superficial ulcerations or excoriations on the genitals, or upon phlegmonous abscesses in the state of suppuration, an assemblage of more or fewer of those characters said to be distinctive of the truly syphilitic ulcer, may, in particular individuals, occasionally follow.

If the above reasons, therefore, are just, it follows that ulcers, arising from impure sexual congress, are influenced by so many different circumstances of constitution, habit, temperament, atmosphere, intemperance, attention to or neglect of cleanliness, &c.; and, according to that influence, assume so many different forms, that it becomes an extremely difficult task to pronounce with accuracy on the nature of the complaint.

When situated on the same texture, or on different textures in the same individual, these ulcers often present a diversified appearance; and I have, in several instances, had occasion to notice from five to seven ulcers in the same individual, each of which differed in its characters from the other. To what, then, are we to attribute this variety? Is it to the action of several distinct poisons? Or is it to the action of the syphilitic poison alone?

If it be to the action of the syphilitic poison alone, our diagnostic characters are incorrect and useless.

If it be to the action of distinct poisons, By what characters are we to distinguish that ulcer which is the effect of the venereal poison from the others?

If these ulcers, whatever their appearances may be, should be followed by constitutional symptoms, it appears to me reasonable to conclude, that they had a syphilitic origin; but, until these effects are observed on the constitution, they cannot, with any accuracy, be distinguished from those ulcers which are not syphilitic.

It is, I think, not improbable, that almost every species of ulcer arising from other causes except that produced by varicose veins, may also occasionally be found to have its correspondent appearance existing in chancre.

I do not mean, therefore, to assert, that all those ulcers which have come under my observation and care have been truly syphilitic, nor can I justly say what proportion of them have been so; but that some, however, out of such a number as *two hundred and thirty-nine*, must have partaken of that nature, will, I should think, be admitted, especially since some (nineteen) have been succeeded by symptoms milder, indeed, but analogous to those constitutional affections which follow where mercury has been employed for the removal of the primary complaint; and as the result in all (*i. e.* removal without mercury) has been similar, the conclusions to be drawn will not, I conceive, be materially affected.

The cases I have classed, accordingly, as they appeared to possess more or fewer of those characters described by Mr Hunter and other authors, as distinctive of true syphilis (except that of showing no disposition to heal without the exhibition of mercury), into those of true venereal character and those not; showing the proportion of one to the other, and the number and nature of the constitutional affections following each description of ulcers. (*Vide* General Table.) The whole of these affections have, however, submitted to a similar mode of treatment, *i. e.* without mercury, and yielded to it without the occurrence of any untoward circumstance.

Of the Method of treating Chancre.

> " In ejusmodi casu prima omnia sunt quies et abstinentia."
>
> *Celsus, Lib. vi. Cap. 5. Sect. 1.*

The treatment of chancre is to be conducted according to the antiphlogistic plan, on the principle of the complaint being purely local, and as if void of any specific action. This treatment may be divided into general and local.

Four circumstances are chiefly necessary to be attended to in what may be called the general treatment.

1. That the patient be confined to bed nearly the whole of the time he remains under treatment.

2. That for the first week, or until after all inflammatory symptoms shall have subsided, and the primary affections shall exhibit a healthy disposition, all animal food should be withheld from him; and even after this time, only a small portion to be allowed.

3. When inflammation, or much of the phlogistic diathesis is present, large general bleedings to be practised and repeated according to the nature and urgency of the symptoms, and age and vigour of the patient, especially if this state be accompanied either by bubo, phimosis, paraphimosis, phagedena, or gangrene.

4. Purging, by means of some one of the neutral salts, compound powder of jalap, *ol. ricini*, &c. is to be adopted on the admission of every patient; and this is to be repeated once or twice a week, or oftener, that the torpor of the bowels, which is occasioned by confinement, may be obviated.

The necessity of a strict adherence to these points, especially the two first, cannot be too strongly insisted upon, as I have often had occasion to witness an ulcer, which, while the patient was observing a horizontal position, and using low diet, was nearly healed, assume a less favourable aspect in the course of a few hours only after the individual had been allowed to assume the erect posture, and in the same space of time again resume its healthy disposition after having returned to the recumbent position.

The same circumstances have been often observed to take place on too early a change of diet, or a larger proportion of animal food being allowed.

Of the Local Treatment of Chancre, or Ulcerations of the Penis, following Sexual Intercourse.—The local treatment of chancre is to be conducted on the same general principles on which ulcers, without any specific action, are usually treated, and chiefly according to the antiphlogistic plan.

If, when first seen, chancres or ulcers appear foul, covered with scabs or crusts, or when they are accompanied with much surrounding inflammation or induration, a common emollient cataplasm, for the first two or three days, will in general be found to be the best application to them.

After the separation of the scabs or crusts, or when there is less of surrounding inflammation or hardness, the ulcers should be kept *constantly* covered with small pieces of lint moistened in some one of the following lotions;* which dressings are to be changed once in an hour or oftener, as the sores should by no means be permitted to become dry, or the dressings allowed to adhere to them from evaporation of the moisture.† For some time, however, the nature of the lotion is of little importance, it being of more consequence that the parts affected be kept moist by a constant renewal of the application; for those ulcers, *cæteris paribus*, in which the greatest attention was paid to this circumstance, appeared to heal in a proportionably shorter space of time.

In confirmation of this observation, I may mention one example of a sore with callous edges, situated in the angle between the glans and prepuce, to which nothing but cold water was applied, and under this treatment it healed in twelve days. This case was considered remarkable both by Staff-surgeon Marshall and myself; and was also particularly noticed by Professor Thomson, Drs Erly, Luscombe, Mr Micklam, surgeon,

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* Aqua frigida. Lotio Liquoris Plumbi. Lotio Zinci Sulphatis. Lotio Nigra ex Aquæ Calcis lbj. et Submuriatis Hydrargyri ʒj. Lotio Cærulea vel Sulphatis Cupri gr. viii. et Aquæ Puræ lbss. The strength of these lotions may be varied according to circumstances.

† I am informed by Mr Micklam, surgeon, 77th regiment, that he is in the habit of using an ointment composed of the subacetate of copper and simple cerate, to syphilitic ulcerations, with considerable advantage; but this is not applied until all increased vascular action or inflammation has been subdued.

77th regiment, and many other professional gentlemen who occasionally visited the hospital.

I shall not attempt to account for the manner in which these salutary effects are produced; but I think it not improbable, that they are to be attributed chiefly to the abstraction of heat which they occasion, thereby moderating the local vascular action in the vicinity of the sores, so as to favour the process of granulation.

That some of these lotions may, in certain constitutions, possess superior sanative powers, I think not unlikely; but I confess that my experience does not furnish sufficient *data* upon which to form any decided opinion as to the superiority of one over the others. I may here mention the two trials which I was induced to make, and the circumstances which occasioned them.

A foreign physician of some eminence, while witnessing the non-mercurial practice in the Detachment Hospital, doubted whether it could be with propriety so called, while a lotion composed of *submurias hydrargyri* and *aqua calcis* was employed in the cure of syphilitic ulcerations, and said, that he thought it very probable that the absorption of a certain quantity of that mineral from the surface of the sore to which the *lotio nigra* was applied, might in some degree contribute to the removal of the disease. To convince this gentleman that the lotion did possess no more a specific effect when thus applied, than any of the others already mentioned, I selected two patients who had each four tolerably well characterized sores situated between the prepuce and *glans penis*, and in each of the two cases, I applied different lotions to the different sores, in order to ascertain whether any one of them possessed superior efficacy in healing the sores. The lotions chosen for this purpose were the following. Lime water, blue wash, or solution of sulphate of copper; solution of sulphate of zinc, and goulard water. The order in which the sores healed was not the same in both cases. In the one individual, the sore to which the solution of sulphate of copper was applied, healed first; the next in succession, that to which the sulphate of zinc was applied; the third, that which was treated with lime water; and the longest in healing, was that to which the goulard wash had been used. In the second individual, the sores healed in the following order:—first, that to which the lime water was applied; second, that treated with the goulard water; third, that with the blue wash; and, lastly, that with the solution of the sulphate of zinc.

Allowing that one pint of the *lotio nigra* would be sufficient to heal a sore or chancre, even though no decomposition took place on the mixture of the lime-water with the calomel; we may suppose that one thirtieth part of the drachm of calomel came into contact with the sore, and that, of this thirtieth part of the drachm, or two grains, one tenth part of which, that is, about a fifth of a grain of calomel (or of protoxide mercury when decomposed), may be absorbed from the surface of the sore; I would ask, if this quantity of that mineral could be deemed sufficient to influence the healing of syphilitic ulcers, or protect the constitution from their effects. I can scarcely suppose that any advocate for its use in this complaint, would venture to reply in the affirmative. That the healing of these ulcers does not depend on any specific effect produced on them by the application of this mercurial preparation, through the medium of the *lotio nigra*, I conceived has been fully proved, by the result of the experiments in the cases above mentioned; because, it will be observed, that the same effects are produced where other lotions have been employed, which do not contain a particle of mercury. To avoid, however, the possibility of quibbling on this point, I have for some time past abstained entirely from the use even of this lotion, which I regard as nothing more than a solution of the muriate of lime.

Should the ulcer or ulcers be situated on the outside of the prepuce, or on the body of the penis, in addition to some one of the before mentioned lotions, the penis may be enveloped by a cloth wetted in the saturnine lotion, or lint spread with some simple ointment may be applied over the black or other wash, which, by preventing the speedy evaporation, keeps the parts more moist, and lessens the necessity of so frequently changing the dressings.

When ulcers are situated on the outside, or surrounding the verge of the prepuce, and are accompanied (as they very generally are when thus situated) by some degree of inflammation of that membrane, which is one of the frequent causes of phimosis, it becomes of consequence to defend them as much as possible from the contact of the urine, which tends to prevent them from healing, and protract the cure. This is best done by introducing pieces of lint moistened in some one of the before mentioned lotions, between the glans penis and prepuce, and folding back part of the lint over that membrane. When ulcers are situated in this manner, more frequent changing of the applications becomes necessary. When, from inflammation and discharge from beneath the prepuce, there is reason to suspect the presence of one or more ulcers on its internal surface, or near the glans, any one of the before mentioned lotions, either warm or cold, injected very frequently between it and the prepuce, will be found of service; the parts also should be surrounded by folds of linen moistened with the saturnine lotion, until the prepuce can be with tolerable ease made to pass backwards and forwards over the glans, and the ulcers may be so exposed as to allow of their being dressed.

If the antiphlogistic treatment be rigidly enforced, both generally and locally, it will, I think, be seldom found necessary to have recourse to an operation in phimosis.

Paraphimosis is one of those concomitant affections of syphilis which often arises from intemperance, or neglect of cleanliness on the part of the patient. This affection, which I need not here describe, may, in general, with some little trouble on the part of the surgeon, and not a great deal of pain to the patient, be relieved without the necessity of having recourse to an operation. Here, it will be found useful to employ warm fomentations or emollient cataplasms to obviate the increasing of, or diminish the existing, inflammation.

It is almost unnecessary to observe, that phimosis and paraphimosis may follow every inflammatory state of the prepuce, however induced, and that they are not necessarily the consequence of venereal infection. Only two cases having occurred of the number 239, treated without mercury; and here the affection may be attributed to neglect and intemperance.

Of Phagedenic Chancre or Ulceration.—This species of ulceration is one of the most serious; and its character, when attacking chancres or buboes, so well known, as to supersede the necessity of my describing it in this place. It may arise idiopathically, or from any stimulus or irritation, either general or local.

Its existence has been often attributed to a peculiarity in the constitution of the patient himself, or in that of the atmosphere, by which he is or has been surrounded; and often to a vitiated state of the air in crowded or ill ventilated rooms. It is observed, however, to be of less frequent occurrence in those cases of syphilis, for the cure of which mercury has not been employed.

I cannot pretend to offer any satisfactory explanation of the manner by which the disposition in syphilitic ulcers to assume the phagedenic character, is connected with the use of mercury; but I beg to state some circumstances strongly illustrative of this fact.

The Regimental and Detachment Hospitals at Edinburgh Castle, are situated under the same roof, a common passage and staircase dividing them. Both together are capable of accommodating 78 patients. The building stands east and west, with a north and south front. The former faces the country, with the Pentland Hills in the back-ground; the latter looks into a paved square of about 100 feet, having the schoolrooms on the west, soldiers' barracks on the north, and the Crown-room and some officers' apartments on the east side. In July and August 1820, the hospital situated on the east of the passage, was occupied by the regiment then in the Castle; that on the west side was appropriated to the use of the sick of the detachments and recruiting parties in the town. In the ward on the first story of the regimental hospital, calculated for 17 men, from ten to fourteen patients affected with syphilis and gonorrhœa were accommodated. Many, if not the whole, of those affected with syphilis, were then, or had been a short time before, under the influence of mercury. Amongst the ulcers in this ward, there was a manifest tendency to assume a phagedenic character. One or two open buboes, a very short time after admission into this ward, became affected with it; and other sores daily partook of a similar disposition. While the syphilitic sores on that side of the building were thus tainted with phagedena, those in a ward of similar dimensions, on the opposite side of the passage, amounting to five or six, which were treated on the non-mercurial plan, entirely escaped that tendency. How circumstances of so discordant a nature, affecting persons so similarly situated, can be accounted for, I am at a loss to determine, except by the mode of treatment.

As this affection is occasionally to be met with when the individual has for some time neglected the complaints, and with that neglect has been guilty of intemperance, or exposed to fatigue, I beg leave to offer a few remarks on its treatment.

All practitioners are now agreed, that, in this form of chancre at least, mercury is highly prejudicial. In the few of the cases which seemed disposed to assume this character, a moderate bleeding from the arm, and a change of situation from one ward to another, or even in the same ward, seemed to be followed by the effect of correcting that disposition. But in those cases of this form of syphilis, which I had occasion to witness under the care of my friend Dr Mahony of the 7th Fusileers, the subjects of them were each at once bled from 40 to 45 ounces; which large bleeding in the course of about six or eight hours, was in each followed by a subsidence of all febrile irritation, and a complete cessation of the phagedenic character in the ulcers, which in both men were of large size.

These are extreme cases, which I notice merely to illustrate the extent to which blood-letting, under certain circumstances, may be safely carried in subduing this form of the disease: Not that I mean, by this illustration, to recommend its general adoption to that extent; but only to show, that we must not be deterred from using this most powerful means of checking so destructive a form of disease, by the groundless apprehensions of thereby inducing subsequent debility and exhaustion.

It is a circumstance which I think not entirely unworthy of attention, that the pulse, which, before the bleeding, is usually small, frequent, and contracted, should uniformly rise, and become more slow and full after the abstraction of a large quantity of blood; and as we have a similar example of this circumstance in gastritis and enteritis, may we not infer, from analogy, that this affection is of a highly inflammatory nature?

In addition to bleeding, the best general means of arresting or correcting the phagedenic disposition, seems to me to be the free admission of pure air into the chamber of the patient, which, if possible, should be exchanged for one on the other side of the building, the use of a mild nutritious diet, as also the salt-water bath, either tepid or cold, according to the season of the year.

As practitioners vary much in the applications they make choice of in this kind of ulcer, when it has not proceeded from a syphilitic origin, so will it also be found necessary to make frequent changes and variations in the selection of topical remedies, when it has been modified by a syphilitic taint; for there is perhaps no one morbid affection to which mankind is liable, that appears to me to be (if I may be allowed the expression) more malignant or capricious in its nature with regard to the influence which remedies seem to exercise over it, than the kind of ulceration of which we are now speaking.

Among those which have seemed most useful, I may mention the carrot, turnip, or hemlock poultice, the black and blue washes, solutions of the nitrate of silver, tincture of myrrh, much diluted nitric acid, warm turpentine dressings, diluted Fowlers' solution, Peruvian and other balsams, and finally, escharotic applications. If, as it not unfrequently happens, that from pain, irritation, and other circumstances, the patient should be unable to bear the weight of the poultice, lint dipped into the black or other mild wash seems to be a good substitute, and will, in general, be found efficacious. This requires to be changed every hour. Lint, spread with some mild ointment, and applied over the black or other wash, keeps the part moist, and lessens the necessity of more frequent changing. Removing the edges of the ulcer by the knife or scissars, when they have been ragged and coated, has been often attended with good effects. This practice, I find, has been recommended by Celsus, although not mentioned by him in the treatment of phagedena. As an illustration of the good effects of the practice above mentioned, I will here take the liberty of subjoining a brief history of one of those cases in which the phagedena occurred to some extent while in the Regimental Hospital, on the opposite side of the passage to that where the sick of the detachments were accommodated, and which was an extreme case, among some others that were successfully treated without the use of mercury, after being transferred to the Detachment Hospital, on the occasion of the regiment quitting Edinburgh Castle.

P. C., aged 24 years, transferred from Regimental Hospital 4th September 1820, where he had been since the 20th May preceding, for the treatment of an ulcer deemed to be of an Hunterian character, adjoining the frænum, and an inflamed bubo in the left groin, advancing to the state of suppuration. By the use of mild dressings and the antiphlogistic treatment, the ulcer on the penis healed up by the 26th; the bubo, however, proceeded to suppuration, and was opened by the potass caustic on the 2d June. By the 18th the ulcer in groin had increased, and assumed a phagedenic appearance, which continued to increase, followed by sloughing, till the 26th July, when the patient was put on a course of mercury, using ʒss. of the ointment at bedtime, and taking *Pil. hydr.* gr. v. morning and evening, and a carrot poultice applied to the ulcer. A considerable ptyalism coming on about the 30th, the frictions were discontinued. The ulcer improved under this treatment. The use of pills was discontinued, from a recurrence of the ptyalism on the 6th August, and resumed again on the 20th same month; and with these bark, wine, opium, and liberal diet were administered until 4th September, when he was transferred into the Detachment Hospital, at which time the state of the complaint was as follows. In the left groin, a deep ulcer of 3 inches length, 2½ breadth, with ragged, loose, and everted edges, surface uneven, and covered by a thin, fetid, sanious discharge.

In the right groin was a smaller ulcer of a similar description, the surface of which was not so deep. The patient was pale and emaciated, and his general health appeared to be much impaired. His mouth was then slightly under the influence of mercury. The use of that remedy was immediately given up, while that of the bark was continued for some days longer. The blue wash and carrot poultice were applied to the sores, after the loose edges of that in the left groin had been removed by the scissars.

In a few days after the adoption of this mode of treatment, the disposition in these ulcers to spread was arrested, and they daily acquired a healthy appearance. By the 22d September, the lower part of the sore in the left groin cicatrized; simple dressings, with compress and bandage, were now applied in lieu of the lotion and poultice; and under this application, and occasional slight use of the sulphate of copper or nitrate of silver to repress the luxuriant granulations, they were both completely cicatrized by the 12th of November, after having been under treatment in the Regimental Hospital 106, and in the Detachment Hospital 76 days.

Whether we are to consider the change from one hospital to the other, which was only across the passage, or the change in the mode of treatment, as separate or combined causes of the very manifest improvement which was so speedily observed to obtain in the condition of the case above recited, the circumstance is no less remarkable, and quite convincing, that the use of mercury, so far from being of service in this case, appeared to encourage the tendency of the ulcers to spread. This case may serve as an illustration of the general mode of treatment of phagedena, where, on account of the protracted state of the complaint, and the debilitated condition of the patient from the previous effects of the disease, and the remedies on his constitution, bleeding appeared to be inadmissible. In a more vigorous habit, this remedy, I have no doubt, would have proved beneficial, with less danger of injury to the constitution than the means which had been previously used in so liberal a manner in this case.

Gangrenous inflammation and its consequences may sometimes attack chancre, when this has not been treated with mercury. In general, it is observed to arise from similar causes which were noticed as operating in the production of phagedena, or sometimes from injury; it does, however, occur as an idiopathic affection, and may be successfully treated by the same remedies which are found useful in phagedena. The antiphlogistic regimen is that which appears to be the most efficacious in speedily cutting short the gangrenous tendency. Bleeding, both generally and locally, has been found eminently useful, and as suitable in the treatment of this affection as of the one just before mentioned. A few cases of this nature have occurred out of those which have come under my care, and in them the gangrenous tendency appeared to have originated from neglect and intemperance.

In a very unpromising case of this nature, occurring in an old soldier of the name of O'Brien, of worn-out constitution, and of very debauched habits, that came under my care in the early part of last year, I was induced to premise a large bleeding (36 ounces) soon after his admission into the hospital, before any other remedies had been employed; and the favourable change in the appearance of the chancre was so soon evident, that I was no less astonished than pleased. The ulcer was about an inch and a half in diameter, situated in the angle between the glans and prepuce, engaging part of both of these textures, and dipping deep into their substance. After the bleeding, the surrounding inflammation entirely subsided. The febrile irritation passed by, and the slough began to separate from the upper edge of the ulcer, the surface beneath appearing to be clean and healthy. The healing process went on very favourably, and in forty-two days was completed.

This case was witnessed by many professional gentlemen, who at that time visited the hospital at the Castle, and some of whom perhaps will recollect the name of the individual.

After the bleeding, the best applications in this form of ulcer will in general be found to be anodyne fomentations or poultices, especially if attended with pain. As soon as the inflammatory action shall have subsided, the application of warm turpentine dressings, such as those that were recommended when speaking of the treatment of phagedena, may be useful. In the progress of healing, and as they advance to cicatrization, ulcers on the penis, whatever form or aspect they might originally have assumed, are occasionally liable to become indolent, or at least stationary, and therefore often require stimulant applications. Solutions of sulphat of copper, nitrat of silver, or dilute nitric acid, will then be found serviceable.

Of Buboes.—Inflammation of the lymphatic glands may take place from a variety of causes, and is by no means, as has been supposed by many persons, the invariable consequence of the absorption of syphilitic virus; as this affection may arise from any simple, as well as specific irritation in the course of the lymphatic vessels leading to these glands. Frequent examples of the occurrence of this kind of bubo may be observed in soldiers after a long march; and these buboes not unfrequently are followed by suppuration. Slight inflammation in the leg or foot, without abrasion of the cuticle, or solution of continuity, often gives rise to this affection, which therefore cannot be regarded as forming a part of the diagnosis of syphilis; although its frequent existence with, or its occasional origin in consequence of that disease, cannot be denied, yet, whether it should arise from that or any other cause, it is found to be no less capable of being removed by the use of mild means, and generally in a much shorter space of time, than where, under the impression of its being of a syphilitic character, mercury has been employed for its cure.

Where ulcers deemed syphilitic exist on any part of the penis, accompanied by buboes, it is generally inferred that they are of the same nature, though this is not universally the case.

Of 239 cases of every description of ulcers on the penis, 103 were accompanied or followed by buboes.

Of these, 95 occurred before, and 8 after the admission of the patients into the hospital.

In 83 cases, the buboes were in one groin only, and in 20 they were in both groins; 61 of these terminated in resolution, and 42 in suppuration. (*Vide General Table.*)

The inflammation to be met with in bubo, seems to be of a more chronic nature than that of phlegmon, and by proper means may be often repelled; but it as frequently terminates by suppuration.

Of the Treatment of Buboes.—In the treatment of buboes without the use of mercury, bleeding generally, as well as topically, will be found useful, and often necessary.

In the early stage of bubo, and even for some time after the existence of inflammation, when it is somewhat advanced to the state of suppuration, the symptoms have been in a great number of cases observed to subside under the long continued application of pressure over the inflamed gland, especially where bleeding, aided by a brisk purgative, has been premised.

The pressure is to be equally and evenly applied completely over the entire part inflamed, by means of a circular or oval flat stone, or a copper or leaden weight, of suitable form and dimensions. This is to be enveloped in a piece of tow or linnen, and kept firmly on the part with a linen or flannel roller, so applied as to pass alternately round the thigh and belly, and to cross at the groin, or directly over the part to be compressed. It will be found of advantage to relax these parts, by bending the thigh on the belly while the bandage is applied, which, when the limb is straitened, is thus rendered sufficiently tight over the groin; otherwise it is apt to become slack, and thus defeat the intention, and occasion more uneasiness to the patient. The pain at first felt is severe, and the more so in proportion to the degree of existing inflammation; but this pain, in general, soon subsides, and does not return. In consequence of its appearing not to be followed by the usual effect, it is sometimes necessary to suspend the pressure for some hours; and on its re-application, it is frequently observed to produce a better effect. Saturnine and cold evaporating lotions assist materially in promoting the discussion of buboes.

Blisters also are found useful, when buboes appear to be indolent, or more than usually chronic in their nature, especially if modified by a strumous diathesis.

If, after a trial of any of the above means, the progress of buboes to suppuration cannot be prevented, the application of emollient cataplasms and warm fomentations will generally be found to hasten that process; but it sometimes happens that, after the formation of matter, its absorption takes place when least expected. This not unfrequently occurs under the application of a cataplasm, which perhaps has been applied with a view to promote the speedier advancement of the bubo to maturation. If this disposition to absorption is not observed in a day or two after a fluctuation is felt, the sooner the abscess is opened the better, after the integuments over the sac become thin enough for this purpose. This appears to me most advantageously accomplished by means of the *potassa fusa*; and very frequently before the separation of the eschar formed by this substance takes place, a considerable portion of the contents of the sac is absorbed; and afterwards an ulcer is left behind, which is in general healthy, and not often accompanied or followed by sinuses, which not unfrequently occur where mercury has been employed. The opening made by the caustic should be small in proportion to the size of the bubo. The same local treatment is to be practised after buboes have been opened, as recommended in the treatment of ulcers; but I may here observe, that buboes in an ulcerated state admit, more readily than ulcers on the penis, of the application of straps of adhesive plaster, supported by compress and bandage, which very often accelerate their cure.

With regard to chancres which are treated by the means before described, it is to be observed,

1. They do not appear to become progressively worse, but in general lose their hardness surrounding inflammation, or sordid appearance, by the end of the first week.

2. They do not appear to heal more quickly in proportion as they exhibit fewer of those appearances, said to be indicative of syphilis, by Mr Hunter.

3. The disposition to spread or assume a gangrenous or phagedenic appearance, is of very rare occurrence.

4. They are in general a longer or shorter time under treatment, in proportion to their number, size, degree of surrounding inflammation, or according to the habit and constitution of the individual, or to the neglect of the patient, or the attention which has been previously observed.

5. Ulcers for some time do not appear to be very much influenced by the kind of lotion applied to them; but chiefly so by the constancy and assiduity with which these lotions are kept

in contact with them, as those sores, *cæteris paribus*, in the treatment of which this point was best attended to, generally seemed to heal the soonest.

6. It was often observed, where there were from three to five or seven ulcers on the same individual, and also on the same texture, that the greater number healed about the same time, while one or two remained stationary, or sometimes even retrograded a little; but this took place in those persons who appeared to be of a strumous diathesis; we may here state the question—did the ulcers longest in healing differ in their specific nature from those which healed more quickly?

7. Ulcers which are treated on the simple method, do not appear so much disposed to cicatrize with induration, as those which are treated with mercury; or, when healed, to reulcerate, except from neglect of cleanliness, or friction of the clothes, which of course they would equally be disposed to do from either of these causes, under any mode of treatment.

8. After the cure of ulcers (or buboes) under this mode of treatment, the individuals in whom they have occurred have been in a fit state of health to follow immediately their usual occupations of life, whether that should expose them to fatigue, or the vicissitudes of the weather; which I apprehend they could not with safety venture to do, had they been subjected even to a *slight* or *discriminate* course of mercury.

With regard to buboes under the same mode of treatment, it may be said,

1. The occurrence of buboes, in the progress of treatment of ulcers on the penis without the use of mercury, is comparatively unfrequent, as, out of 239 cases of ulcers of all descriptions, eight buboes only occurred after the admission of the patient into the hospital; and in many of these the disease had been previously neglected.

2. Those buboes which accompany or follow ulcers whose appearances are deemed characteristic of true syphilis, are not observed to be more difficult of cure than others; and they are, in general, easy of discussion when treated early.

3. When advancing to the state of suppuration, they do not acquire a great size before the formation of matter; and sinuses are of rare occurrence.

4. In fourteen, in whom there appeared to be a greater degree of strumous diathesis present, the resolution of the buboes was more tardy.

5. Buboes which suppurated, and were opened by the *potassa*, soon after the separation of the eschar, became in general clean, and healed kindly in a short space of time.

The average time which was found necessary to cure buboes, terminating by resolution and in suppuration, was generally about thirty days. *(Vide Tables 2d, 3d, & 5th.)*

Of Secondary Affections.—The specific characters of the constitutional symptoms of syphilis are as difficult of diagnosis as those of primary affections. This difficulty has, by many authors, been ascribed to a variety of causes, and, amongst the rest, to those effects which are produced on the constitution by the exhibition of mercury, under the use of which the previous local disease had been removed. As Struthius says—" Quin enim hic morbus, non sit unus simplex, sed ex pluribus simplicibus unum illi genus subalternum dari non potest nec definitio una, sed descriptio potius. " *

I shall therefore attempt to describe those affections which have followed the primary symptoms in the cases which I have treated without the employment of mercury, and enumerate those which are sometimes found to occur in other cases treated by this means.

The symptoms affecting the general system, where the primary or local disease has not been treated by the use of mercury, may be divided into two orders, viz. into those which are sometimes found to be coexistent with the primary symptoms, or to occur immediately after their cure; and into others which take place at a more subsequent period. Constitutional symptoms are in general found to occur from six weeks to as many months after the removal of the primary complaint. Cases of the first order generally consist of—1*st*, Affections of the fauces; 2*d*, Eruptions of the skin. While those of the second order are—3*d*, Iritis, or inflammation of the iris; 4*th*, Periostitis, or inflammation or thickening of the periosteum. The affections of the fauces are—erythematous inflammation, excoriation or aphthæ of the mucous membrane covering the pharynx, amygdalæ, uvula, velum, &c. The affections of the skin are analogous in their general appearance to those diseases affecting this texture that arise from other causes, and may be referred to the five following orders of the late Dr Willan's classification of cutaneous diseases—Papulæ, Squamæ, Exanthemata, Pustulæ, Tubercula.

The forms of the Papulæ are—Lichen simplex, and Strophulus confertus.

Those of the Squamæ are—Psoriasis guttata, and Lepra vulgaris.

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* J. Struthius apud Luisin, p. 955.

Those of Exanthemata—Roseola æstiva, and Scarlatina.

Those of Pustulæ—Impetigo Sparsa, Variola, Ecthyma.

Those of Tubercula—Acne indurata, and that form which was first noticed by the late Dr Bateman, and described by him in the 5th volume of the Medico-Chirurgical Transactions.

These eruptions sometimes occur without, but often in conjunction with affections of the fauces, and are usually either preceded or accompanied, and occasionally followed, by febrile irritation, and obtuse wandering pains of the head, joints, and limbs. Many of these eruptions are sometimes observed to be coexistent in the same individual, or succeed each other in the order above related. But, in so far as is consistent with my own experience, I have not observed any particular description of ulcer to be followed uniformly or solely by any peculiar form of eruption. Of the 51 cases of primary affections possessing most of the characters said to be truly syphilitic, treated without the use of mercury, four were followed by secondary symptoms, under the following forms. One ecthyma, with erythematic inflammation of fauces: One tubercula Batemanii, with do: One ecthyma, without affection of fauces: One aphtha, without eruption. Of 186 cases of primary affections of various kinds, which possessed fewer of those appearances said to be characteristic of true syphilis, fifteen were followed by secondary symptoms, under the following forms. Four lichen, without affection of fauces: Two strophulus confertus, with erythematic inflammation of fauces: Three pustular, viz. one ecthyma, two variola, one of which last was accompanied by sore throat and periostitis, the other by iritis: Three exanthemata, viz. roseola, with erythematic inflammation of the fauces: Two tubercula (Batemanii), without affection of the fauces: One aphthous sore throat, without eruption. It is necessary here to observe, that although, in several of the examples above mentioned, the symptoms under which the patients laboured were so mild as scarcely to deserve notice, yet candour induces me to bring forward every circumstance relative to the subject, however unimportant they may appear.

The period of the occurrence of secondary symptoms, their nature, and the time required for their removal, will be seen in Table the Fourth.

Of the Treatment of the Constitutional Symptoms.

Affections of the Fauces.—After the removal of the primary affections by the means before described, the subsequent affection of the fauces is in general found to be of a very mild nature, and soon to yield to the use of slightly acidulated or astringent gargles, and the application of a blister to the external part of the throat. If preceded or accompanied by febrile irritation, or obtuse wandering pains of the joints and limbs, as generally occurs, blood-letting, in a quantity suited to the urgency of the symptoms, and the strength, habit, and constitution of the patient, is frequently beneficial. Gentle purging, with some of the neutral salts, will also assist the last remedy in lessening the febrile irritation. Antimonial or (when pains are present) anodyne diaphoretics, with the occasional, and sometimes daily, use of the warm bath, are found very useful, and often necessary, in allaying the irritation. In some cases of excoriations, or superficial ulcerations of the throat, or after the separation of aphthous sloughs, the application of solutions of the sulphate of copper, or alum in decoction of bark, or even touching the parts with sulphate of copper, nitrate of silver in substance, or diluted nitric acid, will often be found useful.

Of Affections of the Skin.—When first an eruption appears on the skin, it is very difficult to pronounce with accuracy what character it will subsequently assume. An eruption which, at first, is papulous, will sometimes become either vesicular, pustular, scaly, or tubercular, or partake of the nature of all the four last mentioned, even in the same individual, and at the same time. As the eruptions in such cases are liable to appear, and often come out in successive patches, the different states and stages of the same eruption will not unfrequently evince many of the characters of the above orders in the same person; and hence they may be supposed, by a casual observer, to be specifically different. One case of this description was followed by iritis, and these symptoms succeeded to a small superficial ulceration on the inner surface of the prepuce. Occasionally, eruptions are preceded or accompanied by more or less of febrile irritation, and in some cases the attack of fever is severe; but there does not appear to be any intimate connexion between the severity of the fever and the subsequent eruption. In several instances, wandering obtuse pains, similar to chronic rheumatism, affecting the joints, aponeuroses, and tendinous expansions, though not confined to any particular region, were observed to precede, and in other cases to follow, the eruption. These pains, in general, were accompanied by langour and debility, and were felt most severely, immediately previous to the appearance of the eruption. The same general means of cure were adopted, as were noticed when treating of affections of the throat, and equally successful.

In the tubercular and scaly eruptions, when attended with much itching of the skin, the ungt. picis and the ungt. hydrarg. nitr. (diluted) were found of service.

Solutions of sulphate of copper and simple mild ointment, were used with good effect in the pustular (ecthyma, impetigo), where from friction there appeared any disposition to ulcerate, which, however, is of very rare occurrence.

Of Iritis.—Although I have had occasion to witness several examples of this affection, in the practice of others, successfully treated without the use of mercury, and have also had the treatment of some cases* in which the disease could not be traced to a syphilitic origin, one case only of that nature has followed in the several examples of the primary affections which are included in the subjoined Tables. In this case, the affection occurred 77 days after the removal of a superficial sore, situated on the inner surface of the prepuce, which sore was accompanied by erythematous inflammation of the fauces. For 55 days preceding the attack of iritis, the patient laboured under what were then considered to be rheumatic pains of his joints, particularly of the ankles; and, twelve days before the inflammation of the iris took place, a papulous eruption broke out, which in succession became vesicular, then pustular, and at last tubercular. This eruption was preceded for three days by strong fever, accompanied by severe pain at the epigastrium, and bore a strong resemblance to variola, so much so, that had not the patient been much marked by small-pox, it might have been mistaken for that complaint. But as this eruption continued to come out in successive patches, and as it existed for 54 days before its entire disappearance, accompanied by the inflammation of the iris, it afforded strong grounds for presuming that these affections were of one origin. By copious general and local detractions of blood, saline purgatives, the frequent application of the extract of belladonna round the eyelids, the use of warm anodyne fomentations during the first stage, and the subsequent employment of the aqueous and vinous tinctures of opium, the solutions of sulphat of zinc and copper dropped into the eye twice or thrice a day, this affection was removed in 31 days; the eruption continued for a longer period before it entirely disappeared from the body.

Owing to imprudent exposure to wet and cold in the month of December, the patient was attacked, 29 days after his dismissal from the hospital, with a pustular eruption similar to that which he had before experienced, but which, under the mode of treatment already described, disappeared again in 14 days. This individual remained in Edinburgh for several months afterwards, without any return of either of these affections, and joined his regiment in perfect health.

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* Within the last eighteen months, I have had occasion to see three examples of iritis occurring in persons of a strongly marked strumous diathesis, two of whom had never been affected either with gonorrhœa or syphilis; and I have also, in that period, witnessed several, and treated other cases of this affection, some of which had succeeded to primary symptoms of syphilis, that had been removed under the use of mercury; and in all these examples the complaint (iritis) was removed without having recourse to that medicine. As some of these cases may be as interesting to others of the profession as they have been to me, I may perhaps, when leisure will permit, lay them before the public, through the medium of this Journal.

1. *Of Periostitis.*—Inflammation of the periosteum sometimes occurs as a symptom of constitutional infection from syphilis. This takes place chiefly over the frontal, parietal, or occipital bones, sternum, humerus, clavicle, or tibia, and is often preceded or accompanied either by wandering, obtuse, or even acute pains in these parts, which sometimes intermit. This affection, however, is by no means to be considered as exclusively one of syphilitic origin; it may occur in individuals as an idiopathic disease, but oftener is noticed in persons of a strumous diathesis; and, as Dr Crampton observes, in the Dublin Hospital Reports for 1817, "It often occupies the seat of the true venereal node, from which it can only be distinguished by an accurate investigation of all the circumstances of the case." But periostitis, when occurring as a sequela of syphilitic infection, is generally observed to be of a more chronic nature than that which arises idiopathically, and does not appear to demand such active treatment as has been recommended by Dr Crampton in that form, which he has described in the work above referred to. Antimonials and anodyne diaphoretics, with the occasional use of the warm bath, appear to be useful in this affection; but the most benefit has been observed to result from the repeated application of blisters over the part affected, with the observance of a horizontal position, and the use of a mild nutritious diet. One case only of this affection occurred amongst those who have been placed under my care. The node was situated over the right superciliary ridge, accompanied by a pustular eruption. These symptoms succeeded to a large superficial sore on the outside of the prepuce, and supervened forty-two days after the removal of the primary disease. The node was removed in forty-eight days, and the eruption in sixty, under the means before related; but after a lapse of fifty days, the patient was again attacked with a pustular eruption, which disappeared in twenty days.

Of the patients labouring under primary or secondary symptoms, treated by the method already described, one hundred and fifty-two have, for the space of from three to six years, remained free of the complaint. Many of these are at present performing their military duty; eighteen remained in Edinburgh upwards of twelve months after the removal of the disease, and in that space continued free from all vestige of it. Thirteen of those who were affected with secondary symptoms, for several months while they remained in Edinburgh, did not experience any recurrence of the complaint; and were then sent to join their respective regiments. The remainder of the patients having been sent to join their corps in different parts of the world, no accurate statements of the condition of their present health can easily be obtained.

As the troops are always inspected once every week, it is almost impossible for the men to labour under any symptom of primary or secondary syphilis, or to take mercury without being detected.

I think it incumbent on me to mention, that the cases treated in the above manner in the hospital of the 71st regiment, were under the superintendence of my respected and esteemed friend, Dr A. Stewart, surgeon of that regiment, in which corps I served for several years as assistant-surgeon. The treatment of the cases in the detachment hospital at Edinburgh, also included in the accompanying tables, was conducted by me, under the general superintendence of Staff-Surgeons Dr Thomson, Professor of Military Surgery, and Dr Clarke. To the former of these gentlemen I feel highly grateful for much valuable information and instruction, not only while associated with him on public duty, but also since he has been relieved from the Medical Staff in North Britain, and likewise for his uniform kindness and attention during the time I have been employed on this station.

Conclusion.—Having now given a general description of the simple method of treatment of syphilis, I beg to offer a few remarks on the advantages which this method appears to possess, over that by the use of mercury.

In the Primary Affections, Ulcers do not in general appear so prone to assume a phagedenic or gangrenous disposition, but admit of being cured with facility in a shorter space of time. The occurrence of buboes is comparatively less frequent; when they do appear, they are in general more easily discussed, and when they suppurate, heal more speedily. Ulcerations of the skin, verrucæ, rhagades, condylomata, and severe diseases of the bones, have rarely occurred as sequelæ of the disease, when treated in the manner I have already described.

In Secondary Affections.—Although secondary symptoms occur in a greater proportion under this treatment than after that by mercury, yet these affections are of a milder and more tractable nature; and so much so is this the case with respect to eruptions, affections of the throat, nodes, &c. that were it not for the sake of candour in regard to every fact which can, in the slightest manner, bear upon the present investigation, many cases of these affections might have been, from their extreme mildness, altogether disregarded, and not considered to be connected with a syphilitic taint of the constitution.

Although, for the sake of perspicuity, I have, in these 239 cases, noticed those alone in which, at no period of either the primary or secondary affections, mercury had been administered, yet I conceive it proper to state, that, in addition to these, several cases of primary symptoms of syphilis, and ten of secondary, (of which latter class some were severely affected), where mercury had been previously administered in other hospitals, either for the removal of the primary, secondary, or both kinds of symptoms, have been transferred and treated in the Detachment Hospital at Edinburgh Castle; and that, subsequently to their admission, these several affections were removed, without having farther recourse to that remedy.

Of the possibility of the cure or removal of syphilitic affections, by the mode of treatment already described, I think there can be no doubt. Some, I know, violently condemn the practice, and consider it inefficacious, apprehending many disastrous consequences; but have they given the plan a trial? Others contend, that the disease, as now met with, is of a much milder nature than that which is described by many of the older writers on the subject.

Perhaps the greater number of those who have neither witnessed nor practised this mode of treating syphilis, are of opinion, that the safest method lies between the two extremes, viz. much and no mercury; and while they admit the frequent bad effects of its abuse, still recommend the exhibition of a small quantity (or what has been by some called the discriminate use of that medicine, for the protection of the constitution. Of these several opinions, it is not my intention at present to take notice, further than to observe, that cogent arguments may be adduced in support or refutation of each of these hypotheses. At the same time, I cannot but confess, that the primary or specific nature of the disease, its effects on the constitution, the *modus operandi* of the various remedies proposed for its removal, still remain enveloped in much doubt and obscurity; and I conceive that much experience, with a careful investigation of facts, and a cautious induction from them, are essentially necessary to afford any thing like accurate or just conclusions on these points; and, even with all this care, sources of fallacy may arise, little under our control.

The question relative to the fact of every species of ulcer on the genitals being curable without the exhibition of mercury, as far as the experience of six years will warrant the conclusion, is, I apprehend, decided; the one of expediency only now remains to be solved, and which will require long experience to determine. The importance of the above fact, in a practical point of view, will not be denied; since in those cases of ulcerations on the genitals, supposed to have a syphilitic origin, which are observed in persons of a strongly marked strumous diathesis, or who are disposed to, or affected with phthisis, where there exists a decided objection to the use of even a small quantity of mercury, the advantages to be derived from the treatment already described are manifestly great.

Whether the simple treatment above described shall be found *permanently* successful in eradicating the disease, I leave to time and experience to decide. I am well aware that many conscientious surgeons entertain an opinion, that they would be acting unfairly towards their patients were they not to exhibit mercury in a larger or smaller quantity; but I trust the preceding observations will, when duly considered, convince them, that the simple treatment of these diseases may be attempted at least without danger. I beg likewise to observe, that the use of mercury in venereal diseases has hitherto been confined to only a small part of the world. It is but little used in Portugal, Spain, Naples, and some other parts of Europe; and scarcely, if at all, adopted by the natives of India, Ceylon, &c. With regard to Ceylon, the practice of the native physicians in this disease has been particularly noticed in a very interesting and valuable work on the Medical Topography of Ceylon, by my friend Staff-Surgeon Marshall, who was for a long time on the Medical Staff in that island, and is now in charge of the detachment hospital at Edinburgh.

Edinburgh, 6th September 1822.

GENERAL TABLE,

GENERAL TABLE, exhibiting the Number and Nature of P
between the Month

Primary Affections.						Buboes S				
General Division and Description of Cases, according to their characters.	Treated in the Hospital of the 71st Regiment.	Treated in Detachment Hospital, Edinburgh.	Ulcers only.	Ulcers conjoined with Buboes.	Total Cases.	Before admission into Hospital.	After admission into Hospital.	Total.	Single Buboes.	Single Buboes termi-
Affections possessing most of the characters which are usually considered to be those of true Syphilis - -	6	45	23	28	51	26	2	28	21	1
Affections of various kinds, possessing fewer of the characters considered to be those of true Syphilis - -	66	122	113	75	188	69	6	75	62	4
Total	72	167	136	103	239	95	8	103	83	5

considered to

TABLE SECOND, showing the

	Cases of Ulcers on the Penis, without Buboes.		Cases of Ul	
			Ulcers with Si	
			Cases of Ulcers.	
	No.	No. of days in healing.	No.	No. of days in healing.
	1	8	1	7
	2	16	2	10
	2	17	1	13
	2	19	2	17
	2	20	1	19
	3	21	3	21
	2	22	1	29
	1	24	1	30
	1	26		
	1	27		
	2	34		
	1	35		
	1	36		
	1	42		
	1	45		
Total	23		12	

ed by resolu-
n ten days.
ed by resolu-
n ten days.

TABLE THIRD, showing the Time required for the Cure of P

	Cases of Ulcers on the Penis, without Buboes.		Cases of Ulcers with Buboes terminating by Resol						
			Ulcers with Single Buboes.				Ulcers with Buboes Groin.		
			Cases of Ulcers.		Cases of Buboes.		Cases of Ulcers.		Ca Bu
	No.	No. of days in healing.	No.	No. of days in healing.	No.	No. of days in discussing.	No.	No. of days in healing.	No.
	2	7	2	7	1	3	1	10	3
	7	8	1	8	1	5	1	13	1
	7	9	3	9	1	6	1	16	1
	9	10	3	10	1	7	1	19	
	4	12	3	12	4	8	1	45	
	2	13	4	13	1	9			
	6	14	3	14	4	10			
	5	15	4	15	4	15			
	8	16	2	17	6	16			
	6	19	1	18	2	17			
	9	21	3	19	2	21			
	8	22	4	20	3	24			
	3	24	3	21	3	26			
	8	28	2	28	1	28			
	5	31	1	31	4	30			
	4	35	1	36	1	31			
	4	36	1	43	2	33			
	2	37	1	60	1	42			
	2	38							
	4	44							
	3	45							
	2	50							
	1	55							
	1	60							
	1	72							
Total	113		42		42		5		5

TABLE FOURTH, showin necessary

General Description of the Primary Affections to which Secondary Symptoms Supervened.	Form of the nece		ed.		
	Cases of Ulcer with and without Buboes.		Periostitis.		
	No.	No. days heali	Periostitis, with Varioloid eruption.	Time of occurrence after removal of primary symptoms.	Time required for its removal.
Affections possessing most of the characters of true syphilis.	Without buboes.				
	1	18			
	with B.				
	1	42			
	1	25			
	1	30			
Affections of various kinds, possessing fewer of the characters usually considered to be those of true syphilis.	Without buboes.				
	1	13			
	1	14			
	1	19			
	1	21			
	1	21			
	1	24			
	1	25	1	42	48
	1	18			
	with B.				
	1	60			
	1	10			
	1	28			
	1	45			
	1	14			
	1	21			
	1	28			
Total	19		1		

Note.—The letter R denotes, th

Coexistent denotes, that ppuration.

TABLE FIFTH, showing the Maximum, Minimum, ar
Affect

General Description of the Species.	Time.	Ulcers, without being conjoined with Buboes.	Ulcers, with and without Buboes conjoined.	Buboes terminating by Resolution, and in Ulceration.	Ulcei Ulcers] Ulcers
		No. of Days.	No. of Days.	No. of Days.	No. o Days
Affections possessing most of the characters of true Syphilis.	Maximum	45	49	60	30
	Minimum	8	7	7	7
	Average	24.2	21.7	26.6	17.6
Affections possessing fewer of the characters of true Syphilis.	Maximum	72	78	90	60
	Minimum	7	3	3	7
	Average	21.8	20.2	22.9	15.3
The above two Species of Affections combined.	Maximum	72	78	90	60
	Minimum	7	3	3	7
	Average	22.2	20.2	23.4	15.8

d Average Period of Ti
ions of Syphilis, without

PRIMARY AFFECTION

s conjoined with Buboes terminating by Resolution.		
with one Bubo.	Ulcers with Bubo in each groin.	
Buboes.	Ulcers.	Buboes.
No. of Days.	No. of Days.	No. of Days.
32	42	13
7	13	7
16.4	27.5	10
42	45	17
3	10	7
18	20.6	10.4
42	45	17
3	10	7
19.4	22.5	10.1

PART II.

CRITICAL ANALYSIS.

I.

A Letter to CHARLES HENRY PARRY, *M.D. F.R.S. &c. &c. on the Influence of Artificial Eruptions, in certain Diseases incidental to the Human Body, with an Inquiry respecting the Probable Advantages to be derived from Further Experiments.* By EDWARD JENNER, Esq. M.D. LL.D. F.R.S. M.N.I.F. &c. &c. &c. and Physician Extraordinary to the King. pp. 67. 4to. London, 1822.

NOTHING that proceeds from the pen of Dr Jenner can be indifferent to the profession. Independently of his merits in regard to vaccination, which have gained him the esteem of the world, and will ensure immortality to his name, all his other observations and speculations have been marked by acuteness and deep reflection. The publication now before us, a Letter addressed to a friend, and written in a perfectly familiar style, without any attempt at systematic arrangement, does not admit of a regular analysis, but contains many important reflections on an interesting subject.

The effects of various stimulants applied to the skin in the cure of internal diseases, have long been observed, and have given rise to speculation at different times. The subject is not yet, however, so completely understood as not to be capable of further application, and of more rational explanation. The doctrine of the Humoral Pathologists, which ascribed the good effects of artificial cutaneous discharges solely to their evacuating morbid humours, and that of the Solidists, which only admitted nervous irritation and sympathy as the cause, are equally unsatisfactory. The subject, as being intimately connected with the reciprocal influence of vaccination and cutaneous eruption upon each other, naturally engaged the attention of Dr Jenner; and although it is evident that he has not been able to come to any general conclusions in regard to it, we are well pleased that he has endeavoured to excite inquiry, by enumerating the points which, in his opinion, are deserving of investigation. He has confined his attention to one irritant, tartar emetic, rubbed on the skin in the form of an ointment; and we trust that we do an acceptable service to our author and to our readers, by adding, to the history he has given of the subject, some valuable facts probably little known in this country.

The first trial of the effects of the external application of tartar emetic, triturated into a subtile powder, and mixed up with axunge, was made by Mr Gaitskell and his friends.* It produced itching pimples upon the skin, many of which suppurated; and, upon one gentleman, a saturated solution of 120 grains proved so irritating, "that a great many of them suppurated; and such an universal sensibility took place over all the integuments as confined him to his bed a whole day, being incapable of bearing the friction of his own dress;" and, in another, the suppurating pustules were so large as to require being punctured and dressed.

In the same volume are some observations on the external use of tartarized antimony in rheumatism, by Dr Bradley, who uniformly rubbed in finely powdered tartar emetic, moistened with water, in the dose of a scruple when applied to the superior extremities, and half a drachm to the lower. In nine cases out of ten, an eruption was produced generally in the course of the lymphatics, but sometimes on very distant parts of the body; and Dr B. expresses his opinion, that a very free use of such frictions would produce a general eruption over the body. The pustules were always compared by the patients to variolous pustules; but they were much smaller, not so red at the base, and not so tense and white when fully suppurated. They were commonly preceded, on the second or third day, by a sense of heat or itching in the part rubbed.

But this mode of treating rheumatism was soon laid aside; and we hear no more of the effects of the external application of tartar emetic, till it was recommended by Dr Struve in chincough. His method was to dissolve a scruple of tartar emetic in two ounces of water, and mix with it an ounce of strong tincture of cantharides. Of this he rubbed a portion every two hours on the pit of the stomach, which produced, during the night, a gentle sweat; and the cough immediately began to decline, and soon disappeared altogether. The more effectual method of using it was next introduced by the celebrated Professor Autenrieth of Tubingen, now of Stuttgardt, as a certain remedy for chincough.*

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* Observations and Experiments on the External Absorption of Emetic Tartar and Arsenic. By William Gaitskell, read August 1790. Memoirs of the Medical Society of London, Vol. iv. p. 79. 8vo. London, 1795.

A girl of about eight years old was brought into the Clinical Ward of Tubingen, affected with general anasarca and obstinate cough, supposed to be caused by the sudden repulsion of scabies by inunction. All medicines calculated to remove the water by the kidneys or skin failed; and neither frictions, nor the vapour bath, nor baths of ants, succeeded in restoring the natural action of the skin. Dr Autenrieth had read of Sherwen's experiments upon the effect of a solution of tartar emetic in increasing the perspiration. This led him to try it mixed with lard, and rubbed into the skin in the manner of mercurial ointment; and he was delighted to see an eruption produced, and the dropsy and cough disappear as the eruption increased, by continuing the remedy. After this, he employed it in an epidemic chincough which occurred soon after, and made many experiments in other diseases, where he expected benefit from exciting an eruption on the skin: And he found by experience, that it invariably produced a suppurating eruption, and in no instance nausea, which was ascribed, although erroneously, as Mr Gaitskell proved, to the watery solution.

Chincough was epidemic in Tubingen in 1800, and again in summer and harvest 1802, and in greater violence in summer 1803. Upon all these occasions, Dr A. employed his new method of cure, and published notices of its effects from time to time, especially in the inaugural dissertation of Dr Hochstetters (*Observat. veritatem methodi revulsionæ spectantes*, 1802.)

The ointment he used was made by triturating together two parts and a half of tartar emetic, and eight parts of lard, of which he rubbed the size of a hazel nut on the epigastrium or pit of the stomach three times a day. On the second or third day, there came out, on the spot rubbed, an eruption of small vesicles slightly inflamed, resembling chicken-pox at their first appearance. By continuing the rubbing, they became more numerous and larger, got filled with pus, and their circumference was more inflamed. In this state the eruption resembled in some measure, but not entirely, the cow-pox, for the inflammation extended little around the pustules. It next resembled fully ripe small-pox; and about this time, wherever the frictions may have been applied, and whatever care may have been taken to prevent it, pustules spontaneously appeared on the parts of generation of both sexes, and in every trial, whether made on adults or infants. In proportion as the eruption became greater, and as a larger quantity of ointment was rubbed in, this secondary eruption on the genital organs became greater; and in this situation it was wetter, and sometimes caused great uneasiness; but it dried spontaneously, and had no bad consequence. As soon as the pustules on the pit of the stomach were filled with matter, whether they continued to be rubbed, or were left to themselves, they changed into brown crusts, like those of cow-pox or small-pox; and when these crusts fell off, they left marks which remained long red, like the small-pox, which at last became whiter than the rest of the skin. It is of importance to remark, that in order to cure the chincough in this way, it was absolutely necessary to continue the friction, not merely until pustules were produced, but until they were covered with a brown crust in the middle, and got slightly ulcerated edges, which continued considerably painful for some time. In order not to injure the appearance of the breast in females by five or six large pock-marks, the friction was, in some instances, made on other parts of the body, but in vain; for although the eruption appeared, the disease was not removed. But when applied to the pit of the stomach, and pushed till it excited slight ulceration, it succeeded in every case without exception. In eight, ten, or twelve days, the cough gradually ceased, without any other obvious effect; and it is remarkable, that it was the frequency of the paroxysms which decreased without any diminution of their violence; for the last paroxysm which occurred was as severe as any in the height of the disease. When the cough had entirely ceased, and had not recurred for a few days, even on the child heating itself by motion, and the ulcers had reached the size of the nail of the little finger of an adult, they might be allowed to dry up and heal. Sometimes, however, like the small-pox, they would not heal, but continued to spread, with considerable pain. In this case, the saturnine and other ointments were of no use; but they were immediately and safely healed by repeatedly bathing them with a strong infusion of hemlock.

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* Versuche für die praktische Heilkunde aus den clinischen Anstalten von Tübingen von Prof. J. H. F. Autenrieth, 1. Band, 1. Heft. p. 127. 8vo. Tübingen, 1807.

Dr Schneider of Fulda,* employed Autenrieth's method in 168 cases of hoopingcough; and his conclusion was, that it was an excellent remedy, but not infallible, without the assistance of other means. He also found the distress it occasioned very great. In other respects, he confirmed Dr A.'s description of its effects.

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* Archiv für praktische Medizin und Klinik herausgegeben von D. Ernest Horn, iv. Bds. I. Heft. pp. 318. 8vo. Berlin, 1808.

Reports of its effects are also given by Dr Kelch,* Dr Schäffer,† Dr Nolde,‡ and Dr Horn.‖ The last, when physician to the *Charité* of Berlin, extended its application to various other chronic nervous diseases.

In cases of mania of long duration, with a tendency to idiocy, there is a true palsy of the functions of the mind; the susceptibility of mental impressions is entirely deficient; and the usual remedies are not powerful enough to remove a state, which becomes the more difficult of cure the longer it has lasted. Dr Horn has already collected a series of good observations, which put out of doubt the great efficacy of artificial ulcerations, excited and kept up for several months by the friction on the shaved head of tartar emetic ointment. In most cases, good effects followed when the ulcerations had penetrated to a considerable depth, and had continued for 10, 12, or 16 weeks. Dr Horn thinks, that a considerable number of the patients lately dismissed from the Lunatic Hospital in Berlin, would not have been cured, or at least not so soon, without the use of this remedy.

The effects of this remedy were equally remarkable, in some cases of periodical spasmodic affections of the breast, of considerable standing. The spasms returned very frequently, and were accompanied with syncope and suffocation, kept no regular type, and had much resemblance to attacks of *angina pectoris.* The usual antispasmodics gave very little, and only transient relief; the paroxysms became more serious; and it was feared that the patient would expire suffocated. Recourse was now had to frictions upon the præcordia, with tartar emetic ointment, repeated three times a day. In a few days, the usual pustules, with inflamed brim and copious suppuration appeared, and even passed into ulcerations of considerable depth. These had scarcely lasted for a week, when the paroxysms became seldomer and shorter. The ulcers caused much distress, and produced even sleepless nights, and at last a state of fever; but in proportion the good effects of this artificial disease increased; the ointment was therefore continued for some time, but occasionally intermitted, and fomentations with olive oil applied; and when the irritation was much allayed, and scabs began to be formed, the use of the ointment was resumed; and under this treatment, the pectoral spasms were completely removed in about eight weeks.

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* Journal der Praktischen Heilkunde von Hufeland und Himly. 1809. Stuck 4.

† *Ibidem*, 1811. St. II. p. 13. St. III. p. 51.

‡ *Ibidem*, 1811. St. IV. p. 85.

‖ Archiv. &c. 1812. 1. Band. p. 568.

It has also succeeded in obstinate cramps of the stomach. In a very inveterate case of this kind, and in which every other remedy that could be thought of, had been employed in vain, the application of the ointment for six weeks seemed to effect a perfect cure.

In a case of epilepsy in a young girl, in whom the paroxysms were preceded by a sensation of *aura epileptica* originating in the toes, the ointment was applied to the back of the foot, and the ulcers excited kept open for a week. The result was favourable. The paroxysms did not return; and as she continued well for a considerable time, and declared that she had never been so long free from them, she was dismissed at her own request.

In the London Medical Repository for January 1821, a paper is inserted on hoopingcough, by Dr Robertson, whose observations on the use of the tartar emetic ointment, in a great measure coincide with those of Professor Autenrieth.

In the letter before us, Dr Jenner states the history of 18 cases, in which he excited pustules by rubbing ointment of tartar emetic on the skin, as a means of cure in various diseases, and generally with evidently good effects. Of these cases, Nos. 1, 2, 5, 9, 10, 11, 12, 14 and 15, are examples of mental affection in various degrees; 3, 4, 16 and 17 are pectoral; 13 and 18 are stomachic; 6 is hepatitis; 7 a cutaneous affection; 8 chorea. Besides these, there is a case of hepatitis communicated by Dr J.'s brother, and one of irregular hysterics by Mr Fosbroke. Several of these cases are very briefly stated, others more fully; but scarcely any of them so much in detail as we would wish. The preparation used was a drachm of tartar emetic, intimately mixed with an ounce of simple cerate, and a portion of it was rubbed on morning and evening, until the desired effect was produced. The rapidity with which amendment followed in some of the cases of derangement, is remarkable.

A young man laboured under active mania, with obstinate constipation. "It was supposed he must quickly perish. I was again consulted, and in this dilemma proposed to try the result of an application which would produce specific eruptions on the skin. A drachm of tartar emetic was involved in an ounce of simple cerate, and a portion of it was rubbed on the inside of the arms, night and morning, from the elbow joints to the wrist.

Papulæ of some magnitude were produced, and a serous fluid began to be visible on their apices about the third day, when amendment became perceptible, and advanced so rapidly, that the transition from derangement to health was almost inconceivable. Twelve months have now elapsed, and he has had no symptom of a return of the complaint." In another case of violent mania—"Seeing the impression which tartar emetic had made on affections, connected with a disordered state of the brain and nerves, I did not hesitate to direct the application of the ointment, and it was applied to the left arm. Pimples followed in twenty-four hours, and as soon as they became acuminated, and *contained a little limpid fluid*, the patient found ease; the pain continued to abate, and at the end of *three days it was quite gone*. He continues well. This man, like many others who ply as mariners on our river (the Severn), was a hard drinker."

Case third is particularly interesting, on account of the success of the treatment in a very hopeless affection, which we consider to have been an instance of empyema, although the history is not so minute as we could wish. The patient was considered in the last stage of pulmonary consumption. He had anasarca of the hip, thigh, and lower part of the abdomen, a constantly quick pulse, a florid tongue, and a daily exacerbation of fever.

"In the course of the preceding fortnight there was a perceptible enlargement about the centre of the left side of the thorax, giving the appearance of a little protrusion of two or three of the ribs, but which, on examination, afforded no correct information. It seems he had for some time taken the digitalis and other medicines held in most estimation under similar circumstances. I directed these to be continued, and only recommended the pulv. ipecac. comp. to be joined with the digitalis, with the view of soothing the cough. At this period his debility was so much increased that he was confined wholly to his bed, and unable to change his position without the assistance of his father. To engage his mind, and not with the expectation of his ultimate recovery, the ointment was rubbed on the protuberant part until pustules were produced, which was effected within two or three days. Within a week I thought some amendment was evidently perceptible, with regard to the cough and some other distressing symptoms, and the patient thought so too. The application was continued, with the view, though somewhat painful in its effects, of keeping the pustules in full activity. At the expiration of a fortnight, perceptible absorption of the anasarcous effusions had commenced; the general bad symptoms had considerably abated, and his looks were much improved. From this time, his convalescence was rapidly accelerated, so that within six weeks, no apparent vestige of the disease remained; and he began to renew his ordinary avocation of working with his father as a stone-cutter." p. 7.

In the subsequent observations, there are many ingenious hints thrown out, and some curious observations stated; for all of which we express our gratitude, although sometimes not obviously connected with the subject.

From the desultory manner in which this letter is written, it is impossible to give an analysis of it, and by no means easy to extract the author's opinions. He however thinks, that the tartar emetic ointment is quite peculiar in its mode of operation, and "contrary to the more simple effect obtained from the application of a blister, which only raises the cuticle." He also thinks that the effects of irritants differ according as they affect different textures of the skin, and that it is because tartar emetic produces diseased action in the skin itself, its sympathetic affection is different from that of cantharides, which affects the surface only.

"If we enter into minute inquiry, do we not perceive that different natural diseases of the skin have their peculiar sympathies with the constitution, from causes which, from analogy, admit of imitation by the use of artificial irritants? First, have we not those diseases which take away the cuticle, expose the raw surface of the cutis, and excite a new diseased action on the abraded surface, which then discharges a fluid apparently consisting of little more than serum, next a semi-purulent, and, lastly, a discharge nearly purulent? Secondly, diseases or derangements in the cutis itself, which call a train of sympathies into action of still more extensive and important nature; and, thirdly, the subcutaneous affections of the cellular membrane, which indeed do not admit, strictly speaking, of being directly classed with the pure diseases of the skin, though the skin becomes indirectly affected, as in boils or carbuncles? Hence, then, in all probability, arise their complexity and extensive effects on the constitution." pp. 29, 30.

Another of Dr Jenner's opinions is, that from exciting artificial eruptions, "the relief afforded was almost invariably timed, not simply by the first blush of inflammation, but by the appearance of vesicles which contain a secreted fluid; and that these seem absolutely necessary for the production of constitutional influence." He does not agree with the humoral pathologists, who considered eruptive affections "to be drains, by which certain humours existing in a depraved condition of the circulating fluids were carried off; but looks upon them as "exchanges of diseased action." These opinions he supports by a number of analogies and quotations, not always very closely to the point, but generally interesting. As we have already seen, he lays great stress on the production of a fluid. "A vesicular eruption, in general, seems the favourite scheme of Nature for limiting the duration of peculiar morbid actions."—"Every pimple, with a vesiculated head, has an errand to perform for the benefit of the constitution." He does not, however, explain with precision his opinion why the production of vesicles should have so much greater an effect on the constitution, than irritation without the effusion of lymph; but we quote the following passage as a specimen of the style of the inquiry.

"It is a matter of interesting speculation, in what way the sympathy is created between the constitution and the skin, and how the former feels the influence of spontaneous eruptions. Is it not, in all probability, through the medium of the brain and nervous system? The disposition in the brain to receive unfavourable impressions from ill-timed suppressions of cutaneous affections, is a reflex action favourable to my supposition; and I may again remind you of the ostensible connexion of the brain and nerves with the appearances on the skin in the exanthemata. Secretion is an important function, undoubtedly regulated by nervous influence; and by making supernumerary and often temporary secretions, as by extraneous eruptions, may not certain laws of morbid actions, producing results similar to those reasoned on by Mr Hunter, be the most general purport of their appearance? May we not, by making new diseases, check the progress of disease in a vital organ, or in a part where it may be unmanageable, by substituting another which is under our control?" p. 47.

He concludes by suggesting, as subjects requiring more ample elucidation,

"1. The peculiar influence of factitious eruptions, in contradistinction to simple counter-irritation.

"2. To what extent the sympathy of the constitution may differ in eruptive affections which are confined to the surface of the skin, and in those which perforate it.

"3. The applicability of the conclusions to different methods of varying artificial eruptions, with the view of calling into action the different degrees of sympathy.

"4. How far the peculiar constitutional influence results from the *eruptive* form of the local irritation excited, and is analogous with the laws of secretion.

"5. To what extent the analogy between artificial and spontaneous eruptions, in the exchange of diseased actions, obtains.

"6. How far the brain and nervous system are the media through which spontaneous eruptive diseases, and artificial eruptions, influence diseased action." p. 65.

II.

Della Nuova Dottrina Medica Italiana. Prolusione alle lezione di Clinica Medica nella P. Università di Bologna per l'anno scolastico 1816-1817. Del Professore Giacomo Tommasini. pp. 190. 8vo. Bologna, 1817.

In the medical practice of Britain there has been a very important, and, we hope, a very beneficial change within the last twenty years: and we think it must prove highly interesting, both to the practical physician and the medical philosopher, to observe what has been going on in the mean time among other nations. For there is something liberalizing in the study of foreign literature. It has a tendency to free the mind from those narrow views and local prejudices that result from confining our reading to authors of our own sect, or of our own country. From foreign works we may often derive much new and valuable information on the practical part of our profession; and to a speculative mind, it must always be matter of interest to consider the relation in which different nations stand to one another with regard to their comparative advancement in science—the causes that may have accelerated its progress in one nation, and retarded it in another—and that state of mind, or those habits of thinking on scientific subjects, which may be recognised in the medical works published in different countries. A change, pretty similar to what has taken place among ourselves, appears to have been gradually going on upon the Continent; and it is both curious and instructive to mark the differences in form, or in expression, which opinions substantially the same assume among different nations, and the degree of completeness to which they have been brought in different schools.

From these considerations, we think it may not be altogether useless or disagreeable to our readers, if we direct their attention, for a short time, to what is called the New Medical Doctrine of Italy, as it is explained by Professor Tommasini, one of its chief supporters in the University of Bologna.

This Doctrine originated with Rasori, who had distinguished himself so much as a student, as to be patronized by the Grand Duke of Tuscany, and sent by him to travel in France and Great Britain, from whence he returned, in 1792, a fervent votary of the system of John Brown, of which he published a compendium. After this he, for a time, relinquished medicine, and devoted himself to politics; but, in 1799, he appears to have been appointed Professor of Pathology in Pavia. In 1799 and 1800, a dreadful epidemic raged in Genoa, in which Rasori, struck with the want of success of the Brunonian treatment, and the good effects of a bottle of Goulard, accidentally taken by a patient labouring under violent erysipelas, was led to doubt the truth of some of the leading dogmas of the Brunonian system, and to admit, that many diseases were of an inflammatory nature, and that many substances did not act as stimuli. These ideas he first promulgated in his account of the epidemic of Genoa, and repeated occasionally in periodical works; but he has never treated the subject systematically. The Professors of the north of Italy, however, adopted his views with various modifications. Borda at Pavia has long promised, as well as Rasori himself, a treatise on this subject, particularly on the Materia Medica, but he has only published his "Primæ Lineæ Materiæ Medicæ;" and therefore we may look on Tommasini of Bologna as the only writer who has given a systematic view of the doctrine of *Contro-stimuli*, in the work the title of which is prefixed to this article. But this doctrine had no sooner appeared in a complete form, than it met with a strenuous opponent in Dr Luigi Spallanzani of Reggio, who, in 1817–18, published five "*Lettere medico-critiche sulla nuova dottrina medica Italiana,*" which excited very intemperate replies from Tommasini's pupils, and the controversy continues.

Professor Tommasini commences with a flourishing eulogium upon this new doctrine, which he says is by far the best in the world; and affirms, that the discovery of it forms the honour of the Italian school. He calls this doctrine the offspring of Brownism and Solidism; and says that its principles, although in some measure derived from the writings of Cullen, Hoffman, and Baglivi, are more clear, consistent, and simple, than their opinions.

The improvement which he states to have been accomplished in the Italian school of medicine, falls under the two following heads. *1st,* The nature of the operation of medicinal agents on the living body; and, *2dly,* The classification of diseases; which last includes under it an examination of a variety of important morbid phenomena. Before proceeding to consider the opinions now adopted in Italy, it is necessary to state, that the system of our celebrated countryman, John Brown, obtained in Italy an ascendancy incomparably greater than what it ever was able to acquire in his native country; and that the reform which has been brought about among the Italians, is nothing more than the subversion of some of the peculiar principles of that system, and the substitution in their place of notions, more accordant, in the estimation of our author, with facts, and better suited to regulate practice, than the dogmas they have superseded. Any lengthened account of the Brunonian system would be quite out of place here. It is sufficient to advert to two of its tenets, which, according to M. T., have exerted the most effectual and the most pernicious influence over the opinions and practice of his countrymen.

1*st*, The identity of action of all powers positively applied to the living fibre, all being stimulant in a greater or less degree.

2*d*, The debility called indirect by the Scottish reformer, or by excess of stimulus, being the cause of the greater number of diseases.

From these views resulted the practice of prescribing the most powerful stimuli in a variety of morbid states, at present more successfully treated by the depleting method. Now, it is in the refutation of these two positions—objects, says M. T., of universal admiration and implicit faith all over Europe[*] till the commencement of the 19th century, and in the abandonment of the practice deduced from them—that the reform consists, which, according to our author, is to form an epoch in the history of medical science, and in bringing about which he is disposed to ascribe so much merit to his countrymen. The incorrectness of the former of these obnoxious opinions is demonstrated, he says, by the existence of a class of medicines denominated Contro-stimulants, the honour of discovering which belongs to M. Rasori. The doctrine of contro-stimulants, then, as discovered by M. Rasori, and explained by our author, teaches, 1*st*, That many substances act on the living fibre in a manner diametrically opposite to the action of stimulus, and that immediate effects are produced by them upon the excitement, which Brown derived solely from negative powers, or from the diminution of stimuli; 2*d*, That it is possible, by means of the administration of these substances, hence called *Contro-stimuli*, to destroy the effects of excess of stimuli, even without any sensible evacuation; and that their frequent or long continued use produces diseases which can be cured only by an increase of stimuli; 3*d*, That contro-stimulants, equally as venesection and purgatives, afford the means of curing every morbid state proceeding from excess of stimulus, and, *vice versa*, stimulating substances are the remedies of diseases arising from excess of contro-stimuli; *4th*, That the fibre supports a stronger dose of stimulants or contro-stimulants, as the stimulant or contro-stimulant diathesis prevails; and, *5th*, That the degree in which either diathesis prevails, is ascertained rather by the capacity of the system to bear the action of medicines of the one or the other class, than by the existing symptoms of the disease.

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[*] We must remark here, that it seems strange that, considering the numerous good English authors M. T. appears to have read, he should have entered so little into their spirit as not to perceive, that whatever were their faults, even previous to the 19th century, an implicit deference to the system of Brown was not one of them.

It is almost unnecessary to point out how very meagre and inaccurate this account of these substances is. Every substance that can be useful in checking the progress of inflammatory action, either constitutional or local, appears to be classed among the contro-stimulants, without the slightest regard to the various and often dissimilar powers of which they are possessed, and which they exert upon the whole system, or upon some of our organs, and by means of which they are available in subduing the progress of inflammation in some, or in all its stages. It is by the investigation of these intermediate effects, and not by stating, as M. T. has done in so loose and general a way, what are the impressions that medicines produce on what he has conceived to be the susceptibilities of the living system, that our knowledge of the exhibition of medicines must be enlarged, and our skill in the administration of them improved; for it is by a minute knowledge of these alone, that we learn correctly how and when to exhibit them, so as to calculate with probability on their producing the ultimate result we desire from their use. It is true, that it was not M. T.'s plan to enter minutely into an experimental inquiry as to the effects of the substances which he names, and that he merely alludes to them as concurring in producing a certain end. But, still, had such an inquiry been carefully and candidly pursued, and made the basis of arrangement, (and it must be the basis of every arrangement founded on philosophical principles), we should not have seen such a heterogenous farrago of medicines, classed together under one head, and represented as uniform in the nature of their operation as M. T. presents us with; including among them substances of such different properties as emollients, *e. g.* milk and gum; astringents, acetate of lead; powerful tonics, gentian, simarouba, iron, and, according to some, cinchona; excitants, turpentine, squill, arnica; emetics and purgatives, as tartar emetic, ipecacuan, gamboge; narcotics, stramonium, belladonna, lactuca virosa, nux vomica; and acrid poisons, as arsenic and cantharides; in short, every substance which experience has found to be useful in any inflammatory affection, however it may act.

Classifications of medicines are, no doubt, when constructed on right principles, subservient to many important purposes; but as long as our knowledge of most of the sciences connected with medicine is so limited and imperfect, they must be liable to change both in their detail, and in their general structure. A perfectly accurate classification, indeed, will require the solution of many physiological questions that are still doubtful, and an acquaintance with the laws of the animal economy more extensive and more correct than we at present possess. The arrangement of the Italian school, however, does not seem to be so far advanced as the improved pathology of the present day might have carried it. It is founded, not on observation of the immediate and obvious effects of medicines upon the system, or on particular organs, but upon the remote consequences of their exhibition on principles of our constitution, whose existence, or at least whose exclusive existence, is hypothetical at best, if not altogether fictitious; and confounds, under one name, substances of the most dissimilar natures, and productive of the most opposite effects.

It is not a little singular that Tommasini, and the other encomiasts of the Italian doctrine of contro-stimulus, seldom, if ever, employ the term *sedative*, which was used, before the days of Brown, to include many substances, which he claimed the merit of demonstrating to be highly diffusible stimuli; nor do they point out in what respect their *contro-stimuli* differ from the *sedatives* of those who were not followers of Brown. If the terms were synonymous, the boasted discovery of the Italians would be nothing but their having discovered that they had committed an error in supposing, with Brown, that there were no sedatives. But sedative and contro-stimulant, do not seem to be exactly synonymous; and while sedative properly includes those substances only which produce a depressing action upon the system in a state of health, contro-stimulant is extended to every substance which counteracts a state of excitement, and therefore to many whose common action is unequivocally stimulant. But the Italians are by no means agreed among themselves, what diseases arise from increased or diminished excitement, nor what substances are stimuli or contro-stimuli; nor will they ever agree, while they continue to consider the most conclusive proof of any disease being one of excitement, that it is cured by contro-stimuli, and that the only test of a substance being a contro-stmulus, is that it cures diseases of excitement.

But, says Tommasini, the discovery of contro-stimuli was not sufficient to destroy some of the most pernicious maxims of Brown; it was necessary to prove that the greater number of diseases did not depend upon indirect debility; and, in illustration of this, M. Tommassini proceeds to explain the views which he entertains of the nature of inflammation. According to Brown, inflammation, even though originally a disease of the sthenic type, after making a certain progress, in many cases precipitated the fibre into a state of debility, indirect perhaps, but, nevertheless, requiring for its cure the stimulating plan of treatment. M. T. dwells at some length on the injurious consequences of this opinion, the justice of which, he says, observation at an early period of his practice led him strongly to doubt. He flatly denies that inflammation ever changes its type; and states, in the strongest terms, that it is always a sthenic disease, and maintains the same character from its beginning until its termination. The melancholy facilities afforded by the late war for examining the morbid appearances that are the result of diseases, have materially contributed to accelerate the progress of medical science; and the Italians have not neglected to avail themselves of the opportunities they have enjoyed. Accordingly, M. T., agreeably to the extended pathological knowledge of the present day, explains the nature of many diseases, and accounts for the occurrence of many symptoms, from the traces of inflammation that have been observed in the bodies of those who have died of them. Among this number he classes fevers, acute and chronic, lues venerea, convulsive diseases, hydrophobia, &c. Now, we acknowledge with pleasure that the opinions of M. T. are substantially correct; but they seem to have been formed rather precipitately, and are certainly expressed in a way greatly too vague and unqualified. *

The next Brunonian dogma which M. T. proceeds to demolish, is the very extraordinary one, that the nature of the disease is always determined by the nature of the cause that produces it; so that depressing causes always produce diseases of debility, and *vice versa*. However plausible such a position may be, and however convenient it would be in enabling us to determine the precise nature of certain diseases, the symptoms of which are doubtful or contradictory, a very little observation and a very little reflection are sufficient to convince any one that it is perfectly untenable. Accordingly, M. Tommasini brings forward a few instances, such as the occurrence of rheumatism, pleurisy, &c., after exposure to cold and moisture, which are perfectly decisive of the fact, that diseases of an inflammatory type often proceed from causes in themselves capable of exerting, in their primary action, a contro-stimulant power. And, in corroboration of his opinions on this subject, he takes notice of the sudden changes that are occasionally observed in some diseases of excitement, to symptoms of temporary prostration of strength.

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* It is but justice to M. Tommasini to state, that he has since developed, much more fully and satisfactorily, his ideas concerning inflammation and continued fever, in his work, *Dell' Infiammazione e della Febre Continua*. 8vo, Pisa, 1820.

From the power of *pain* to produce depressing effects in certain diseases of a sthenic character, he has been induced to regard it as a contro-stimulant, from whatever cause it may arise, and in whatever degree it may occur.

We now come to what M. Tommasini considers as the very corner-stone of the new doctrine, and the knowledge of which, he conceives, forms the very pride and glory of the Italian School,—the doctrine of irritation. But as we do not profess to understand very well the author's sentiments on this subject, we shall endeavour, as far as possible, to preserve his own words.

Tommasini divides all diseases into instrumental and vital, according as the physical or vital properties of our organs or systems are affected. The vital diseases are again divided into two great classes, according as they proceed from an excess or defect of stimulus. But these also differ, as being diseases of diathesis, or diseases of irritation. We must remark, however, that diathesis, in the sense in which the term is used by the new Italian School, has a totally different meaning from that formerly affixed to it. Instead of designating a particular disposition of the body to a certain kind of diseased action, it is employed to denote diseases which continue after the causes, giving rise to them, cease to act.

M. Tommasini states then, that there exists a variety of morbific agents, not capable of either exciting or depressing the vital powers, but fitted to produce a local irritation, which cannot be cured either by the addition or subtraction of stimuli, but only by the cessation of the local disturbance, or by the expulsion of the irritating matter. Dr Guani, who has written on irritation, classes among irritants, besides mechanical injuries, poisons, miasmata, and contagions; and in fine, all substances, which neither stimulate nor depress the living powers, but only disturb or confuse them, by producing in the fibre a movement of repulsion, disorder or disgust. Professor Rubini has still further extended the doctrine, and endeavours to show, that from irritation arises a third diathesis, not implying defect, or excess of stimulus, but *disarmonic* to the movements of the system. M. Tommasini does not concur in this opinion, for the two following very cogent and well expressed reasons. 1*st*, Because diseases of diathesis, whether sthenic or asthenic, remain after the causes that excited them cease to operate, while, on the contrary, it is characteristic of diseases of irritation, to cease or at least to begin to diminish, whenever the irritating causes cease to act; *2ndly*, Because diseases of diathesis, even while the causes subsist, may be cured by a process of compensation; whereas diseases of irritation can be cured only by removing the causes producing them. Still, however, M. Tommasini admits, that though diseases of irritation cannot be considered as a third diathesis, local irritation possesses a power of producing, by the diffusion of partial morbid excitement, effects fitted to act on the Brunonian excitability, and create a diathesis. Although it should seem that M. Tommasini has laboured more abundantly than all his brethren, yet he is constrained to admit, that his illustrious friend, M. Giannini has eclipsed all others in the splendour of his discoveries with regard to irritation. Following, says T., with a penetrating eye, the irritating substances in their course, through the minutest vessels, he finds them always exciting a movement of repulsion or disgust in them, from their want of affinity to the living fibre, and thus producing ultimately a disturbance of the whole system, different from excessive or diminished excitement, and distinguished "by the ingenious phrase, an affection universally local;" and this, says M. Tommasini very gravely, is to carry to the highest degree of clearness, the distinction between diseases of irritation and diseases of diathesis.

We have now finished our analysis of M. Tommasini's work, the rest of it being occupied with an attempt to show, that the successful practice of all ages may be accounted for on the principles he espouses; and in references to Italian authors on the different subjects of which he has been treating, and from the account we have given of it, we hope our readers will be able to appreciate its merits, and to understand the difference that subsists between the mode of viewing diseases in this country, and that which obtains in Italy. We have occasionally adverted to this difference as we went along; and, where we have not done so, the omission may very easily be supplied; and we shall now close this article, by stating a few remarks that have occurred to us on its general spirit, and the method in which the inquiries appear to have been conducted.

In medicine, as in other sciences, it is of capital importance to avoid premature or inaccurate generalization; and where the sources of deception are so numerous, and the difficulty of accurate observation so great, it becomes us to be extremely cautious before we venture to classify phenomena, or arrange facts under general principles. Instead of this deliberate and patutaking spirit, however, it is perfectly clear that this Italian school is distinguished by a tendency to haste and precipitancy in its arrangements, and over-refinement in its speculations, so strong as would seem to indicate a considerable want of knowledge both of the proper objects of inquiry, and of the rules of reasoning that ought to regulate it. Our readers have only to look back and they will perceive, that the principles of which we have been giving an account, instead of being deduced from a careful observation of the functions of different organs, and from the phenomena these present in a state of disease, are either derived from, or at least have a constant reference to, certain hypothetical notions with regard to the general powers and susceptibilities of living agents. M. Tommasini's notions on this subject are, as we have already hinted, those of John Brown. Now, while it will not be denied that, in the formation of his system, Brown showed no small share of ingenuity, and, in some parts of it, even gave views of particular subjects more correct than were entertained before his time, it is equally undeniable that the system was, in many cases, inconsistent with itself, and, in still more, inconsistent with facts; and that the general principles on which it was constructed are altogether at variance with the principles of sound philosophy. To maintain, like M. Tommasini, that there are only two modes of diseased action, sthenic and asthenic, and only two classes of agents fitted to act on the human system, stimulant and contro-stimulant, is no doubt to introduce into our systems an appearance of captivating simplicity; but it is a simplicity that nature disowns; for it forces us to shut our eyes on the existence of some morbid phenomena altogether, and to give false and distorted views of others; and in proof of this, without going back to any of the errors into which Brown himself was betrayed, we have only to refer our readers to the puerilities with which M. T. has regaled us under the pompous name of the Doctrine of Irritation. We cannot advance far in physiology without meeting a barrier which it seems impossible we should ever pass; but, even long before we come to this point in our inquiries, the most experienced and the most acute are forced to admit, that there are processes going on, both in a healthy and morbid state, the nature of which we cannot explain. But while this is conceded by every one, it is little less than a contradiction in terms to maintain that all these may be ranged under two classes, and that the discriminating marks of each are well known. Indeed, to begin with assuming the general properties of life, and then to explain the nature of the subordinate processes that go on during it, is to reverse the proper method of inquiry altogether.

Although we do not pretend to be altogether free from the faults we have now pointed out in our Continental neighbours, we rather think that British Literature is superior to theirs in this respect—it is less ambitious and systematic; at least our best writers seem wisely to limit themselves to the discussion of those consequences that follow more immediately and palpably from the subject they investigate, and seldom attempt those that are more remote, impractical, and abstract, and which require for their elucidation a knowledge of many facts of which we are at present entirely or partially ignorant.

We have not before us any histories of cases treated according to the contro-stimulant doctrine, from which we might extract examples of the effects of remedies as exhibited by them; but we shall quote a few notes taken by a traveller lately returned from Italy. "In a violent inflammatory dysentery, I saw Borda give 10 grains of gamboge eight times in one day, or 80 grains in the day, and the patient recovered. A man in enteritis got 30 grains of gamboge eight times in one day, or 120 grains in a day, and he died. To pneumonic patients, tartar emetic was commonly given to the extent of 30 grains a day. It is exhibited in small doses of a very strong solution, until the inflammatory symptoms abate, and nausea and vomiting are produced, when the dose is gradually diminished. During its exhibition drink must be abstained from, as, when the stomach is distended, it excites only vomiting. In carditis, I saw 8 grains of the oxide of bismuth given eight times a day. A case of chronic dropsy recovered, after having taken from ʒi. to ℥ss. of mineral kermes a day for several weeks. I saw half an ounce of the extract of aconite given daily in a case of chronic physconia, without producing any of the symptoms which usually arise in other cases from a much smaller dose of the same substance."

We do not believe that such practice will readily find imitators in this country; and, in regard to the last observation, we have no hesitation in expressing our conviction, that the extract of aconite had been, as such extracts very often are, worthless and effete.

III.

1. *Del Metodo di Curare, dell' Insegnamento Medico-Clinico, e di Alcuni stabilimenti di pubblica Beneficenza osservati in Inghilterra. Discorso pronunciato nella Clinica Medica della Pontificia Università di Bologna il xxiv Marzo 1821, del Professore* GIACOMO TOMMASINI, *uno dei 40 della Societa Italiana.* pp. 82. 8vo. Bologna, 1821.

2. *Lettera di* GIACOMO CLARK, *M. D. della Università di Edimburgo al Ch. Sig. Professore Tommasini, intorno alle sue Osservazioni sulla Scuola Medico-Clinica di Edimburgo.* pp. 16. 8vo. Roma, 1822.

WHILE we were writing the preceding observations on the medical doctrine of the Italian School, its expositor, M. Tommasini, was engaged in the similar task of communicating to his countrymen, the observations he had made upon the state of medicine in London and Edinburgh, during a recent visit to these cities. Although his account of the Clinical School of this place has provoked a reply from an able and zealous pupil of our University, now settled as a physician at Rome, first inserted in the *Effemeride Letteraire di Roma*, we must confess, that we do not complain *very much* of the Italian Professor, who appears to us to have been disposed to give as favourable a representation of the state of medicine in Britain as it was possible for one to do, who believed that the Italian Medical School is the first in the world, and that he is the first teacher in that school.

One principal source of the errors into which Professor T. has occasionally fallen, was his imperfect acquaintance with the English language, which materially impeded his communication with some from whom he might have received more full and accurate information. It is with regard to a misrepresentation arising from this cause, that we are under obligations to Dr Clarke for undeceiving the Italians.

"I have visited," says Professor T., "different establishments for medical and surgical instruction in Scotland as well as in England; and, in my observations, I have had principally in view the mode of teaching clinical medicine in Edinburgh, which is so much renowned. But I saw, with extreme surprise, that in this school, so highly celebrated, not indeed from any incapacity in the very learned Professors, but from adherence to old systems, which it is perhaps more difficult to change in England than in any other country, clinical medicine is not properly taught, in the sense in which the term is understood by us in Italy. The clinical instruction in Edinburgh is limited to the mere witnessing of what the teacher adopts or prescribes in the cure of the different diseases; to the mere dictation, I might say to the mere tradition, of the symptoms, remedies and medical prescriptions; to the bare histories of the diseases, and the means employed to combat them, which, to the student who copies them coldly, present no other advantage than a mass of cases, and offer no other resource than servile, and sometimes dangerous, imitation. Nor is the young pupil led to study and to exert himself under the eyes of his teacher; to recognise and define the nature, the degree of the disease, and the consequences to be feared; nor has he any initiation in the treatment of the sick, nor makes trial of his own strength under the eyes of his teacher and fellow-students. In brief, in this school they do not examine, nor teach how to examine, any disease whatever, in all its possible relations, as is the practice in Italy; they do not indicate, along with the fact itself, the *data* derived from the observations upon which they rest; the essential diagnosis of the morbid state; the hopes and the fears of the result, and the general maxims of the treatment; they do not point out the doubts which often affect the diagnosis itself, nor those uncertainties which render our art in many cases imperfect, and which prescribe to the artist a prudent moderation. They do not guard against the dangers of a superficial imitation, by showing how often cases, mistaken in appearance and agreeing in symptomatic relation, may in reality be different or contrary, and require a different or contrary method of cure; and how, on the contrary, many diseases which, judging from the external appearance of their phenomena, might be thought different or contrary, depend, in reality, upon an identical state, and may and ought to be cured by corresponding remedies. In fine, they do not, in England, make an analysis of the diseases at the bed-side of the sick, and under the eyes of all, as, from the time of the celebrated Frank, and after the restoration of the clinical school of Pavia (which served as the model of others in future), is practised with success in almost all the clinical schools of Italy, and, as far as is in my power, in this, which I have the honour to direct."

If this statement was nearly correct, it would be difficult to explain the reputation which the clinical school of this place has acquired and maintained almost since its first institution; but as Dr Clark has stated to those whom Prof. Tommasini's misconception of our method of clinical instruction was most apt to mislead, those most important objects of instruction, and others scarcely taught elsewhere, are not neglected here, but are fully explained, not indeed as in Italy, at the bed-side of the patient, which, from the great concourse of our students, could not be done without great injury to the patients, nor in desultory and extemporaneous conversations or expositions, but in regular systematic lectures, which the Professor endeavours to render as instructive as possible, investigating whatever is doubtful, illustrating whatever is obscure, and explaining the reasons for every part of his treatment. Of these lectures, Prof. Tommasini makes no mention; and although it was incumbent upon him to have made himself master of the whole of this method of instruction, which he ventured to contrast with his own, yet his ignorance is easily explained. He was unable to converse with the pupils, from whom he would have certainly been informed of them; and the Clinical Professor probably thought it unnecessary to invite his Italian colleague to be present at lectures which he could not have understood. We, who have been clinical pupils of both the Franks, in Pavia and Vienna, do not, by this defence of our own method of clinical instruction, mean to assert, that it is in all respects preferable to that followed in Italy and Germany; for we think, that, when the number of pupils is not large, and where the power of the clinical teacher, as in the schools of these countries, is supreme, the method of instruction, by distributing all the patients among the candidates for a medical degree, or the pupils far enough advanced, superintending and directing the examination into the symptoms of each patient in the presence of the whole pupils; questioning the practising pupil and others as to the diagnosis, prognosis, and method of cure; calling upon him to prescribe the treatment, diet and medicines; and approving, modifying, or rejecting what he proposes, with occasional bed-side consultations, and a more full detail of his own opinions in a different apartment;—this method, we repeat, we can from experience assert, is attended with many and great advantages, when conducted by an able and zealous teacher. We have even often wished that it was adopted in the summer Clinical Courses of Edinburgh; but we fear that, from the constitution of the Royal Infirmary, and the relation in which the clinical teacher stands to the other medical officers of the Hospital, its introduction would be very difficult, and could be only imperfectly effected. As it is, perhaps, the methods of clinical instruction in Italy and Edinburgh, are each of them best adapted to the local circumstances of each place; and we trust that Prof. Tommasini, after being better informed, will candidly admit, that our method of instruction is much better than he had believed.

The second part of the learned Professor's Tract is in the Latin language, and entitled "*De congruentia et discrepartia inter Anglicam et Italicam medendi rationem,*" and is in the form of a letter, addressed to Sir Astley Cooper, and the Medico-Chirurgical Society of London. The observations we have made in the preceeding article would supersede the necessity of any notice of this letter, which is intended to point out to us in Britain the great merits of the Italian doctrine, as explained by himself, were it not curious to see how differently the same subject may be viewed by different persons.

The chief discrepancies between the practice of England and Italy, according to the Professor of Bologna, are these:—

1*st*, Some symptoms in inflammatory diseases are treated in England, in a manner not conformable to the general indications, and which would be condemned in Italy. For example, opium is frequently exhibited in inflammatory diseases, when pain or spasms are urgent; and it is given after venesection, or alternated with it, or after purgatives, or in conjunction with calomel.

2*dly*, The British physicians have not made a primitive and essential division of medicinal agents into stimulants and contro-stimulants, as the Italians have done.

3*dly*, and principally, The English differ from the Italians, in regard to the general principles of the art, and the method of teaching medicine. "Angli nempe observationibus fere solis, solis fere morborum historiis clinices medicæ contineri, et a casibus practicis diligenter collectis, et consideratis, artis præcepta satis exsurgere et erui posse arbitrantur. Idque, ex eo saltem conjicere fas est, quod in eorum scriptis (si pauca excipias), ne verbum quidem reperimus de artis doctrina, aut de *pathologica inductione*; ne verbum quidem de generalibus medicinæ principiis, ab observatione et experientia aut firmatis, aut rejectis."

IV.

Historical Sketch of the Opinions entertained by Medical Men respecting the Varieties and the Secondary Occurrence of Small-Pox; with Observations on the Nature and Extent of the Security afforded by Vaccination against attacks of that Disease: In a Letter to Sir JAMES M'GRIGOR, *Director-General of the Army Medical Department, &c.* By JOHN THOMSON, M.D. F.R.S.E. Surgeon to the Forces, Honorary Member of the Royal Medical Society of Edinburgh, Regius Professor of Military Surgery in the University, and Consulting Physician to the Edinburgh New Town Dispensary. Longman & Co. London. Brown, Edinburgh. 1822.

LORD BACON, whose prophetic mind was able to anticipate almost every thing in every division of every science, has well distinguished the different kinds of civil history into Sacred, Secular, and Literary; but the uncultivated state of medical science at the time when he delineated the picture of human knowledge, and the route of scientific discovery in his Treatise *de Augmentis Scientiarum*, has perhaps prevented him from framing the exact notion of a modification of the historic art, not without its use in modern times. History, when applied to medicine, may be of three different kinds;—*natural* history, or the description of those objects, actions, and processes with which the physician requires to be intimate in knowing and treating disease;—*literary* history, or the description of the origin and progress of those branches of knowledge on which the art of medicine depends;—and *chronological* history, or the review of the successive steps by which men become acquainted with the natural history of individual medical objects; the critical enumeration of the errors into which they were led, and the truths with which they were rewarded in relation to the nature of the disease which was the subject of inquiry; and the advancement which was individually, successively, or simultaneously made;—all the information, in short, which can be gathered, to show the manner in which a subject originally obscure and complicated came to be clear, simple, and intelligible. There are, of course, but few subjects in medicine which demand this elaborate investigation; for, in general, when we are satisfied that we know any subject truly and accurately, we are perfectly willing to part with all the erroneous and doubtful matter in the easiest way, and rarely think that our time can be well rewarded in evolving the bearded masters, to know that they were less wise than we, or in ransacking the magazines of ancient literature, to bid the scattered rays of their fallacious glimmerings enlighten the path of modern investigation. In the silent march, however, of centuries or cycles, in the revolutions of opinions, in the progress of doctrines, or in the development of systems, it must occasionally happen, that the physician even who is least disposed to extol the glories of past days, will direct a retrospective glance to periods when the early observers seem to have girt themselves to the illustration of a new and unknown matter, with the freshness and vigour of the strong man who had arisen from slumber;—when the observations made and the facts recorded were so true to the original that the experience and perfection of ten centuries were unable to add any thing to their accuracy. Nay, it has even happened, that the points ascertained at such early periods have been forgotten or overlooked amidst the general ignorance of one age, or the obscuring bigotry of another; and their second discovery has added to the reputation of men who were more honoured in their personal observation of present objects, than by their learning or knowledge of what had been anciently achieved by the fathers of the profession.

Such a subject, in some sense, may small-pox be said to be, and such investigation it may justly require. Though believed to be well known in its nature, the controversies which have lately been agitated on some of its modifications and varieties, show that its natural history is far from being perfect; and the mistakes into which some modern physicians have fallen on points which seem to have been well known to the more early observers, are sufficient proof that its chronological history is neither generally nor accurately known. It is impossible that the investigation of this subject could have fallen into better management than that of Dr Thomson, in whom the powers of faithful and correct observation are so happily united with varied and extensive learning, and indefatigable research. The enthusiasm with which this eminent physician engaged in the investigation of the natural history of varioloid eruptions, was sufficiently conspicuous in the work which he formerly published on the late epidemic in Scotland; and the conclusions at which he had arrived were at once the effect and the proof of the deliberate attention with which he had canvassed all the points, both presumed and problematical, of the question. It will be remembered that Dr Thomson was led, by the results of his investigations, to form opinions somewhat new on the nature of variolous and varioloid eruptions;—particularly that all the varieties of eruption which occurred were generated by the operation of one and the same contagion; and that the iterated appearance of small-pox in the same individual, was not without precedent in former variolous epidemics. It was with the view of ascertaining how far these opinions were supported by the phenomena of former epidemics recorded and observed by various physicians, that Dr Thomson entered on this investigation; and the present volume, which is obviously supplementary to the former, is the result of these researches.

It is not our intention to enter minutely and particularly into the subjects of Dr Thomson's historical sketch; nor will our readers require a very detailed account of a work which must be studied with attention, in order to obtain a just idea of the objects and reasonings of the author. Our duty, we conceive, will be sufficiently well accomplished, if we mention the plan of Dr T., and the general manner in which he has conducted his historical inquiry; and it will be found, in the course of this notice of our author's researches, that he has completely succeeded in establishing the principal opinions which his personal observation had led him, *a priori*, to adopt.

Our author divides the chronological history of small-pox into three different periods;—the first from the time of Mohammed Ebn-Zekaria Abu-Bekr-Alrazi, popularly named Rhazes, in the beginning of the 10th to the beginning of the 18th century, when the practice of inoculation was introduced into Europe; the second, from that time to the discovery of vaccination; and the third, from the time when this practice was introduced to the present hour.

The first of these periods is much the longest; but presents a succession of authors whose opinions are now learnt rather as objects of curiosity, than for any useful purpose. Of these, the most ancient are the pure Arabians, as George Bactischwah, Abu-Bekr-Alrazi and Abu-Ali Hosîn Ebn-Sina (*Avicenna*); the second of whom—the earliest undoubted authority—recognised those modifications of variolous eruption which we now distinguish as benign or malignant, horny, warty, and more or less severe; while he agreed with Ebn-Sina in admitting the possibility of small-pox occurring twice in the same individual.* The second class of authors, during this period of small-pox, consists of the Arabesque, or those European physicians who flourished before or about the time historically named the *revival of literature*, but who derived their information and medical opinions principally, if not entirely, from the Arabian masters. Little remarkable is gleaned from their writings, unless that they coincided with their preceptors in thinking, that the same individual may suffer the variolous eruption twice. Among the subsequent authorities, which are by far the most numerous, we meet with a few names more distinguished, and some more correct accounts of the natural history of the disease, especially with regard to its iterated appearance, which was admitted by Ingrassias, Fracastorius, Fernelius, Amatus Lusitanus, Franciscus de Piedmont, Forestus, and our countryman Duncan Liddle of Aberdeen, who, about the end of the 16th century, was Professor of Medicine at Helmstadt in Germany. Sennert first distinguished the varieties of *stone-pox*, *wind-pox*, and *sheep-pox*, by the names by which they are at present known; and described the two latter, called by some *crystalli*, as similar to the eruption since named *chicken-pox.* Johnstone noticed the popular German terms for the varieties of sheep-pox (*schaafs-blattern*) and tuberculated eruption (*stone-pox*); and Andrew Buxbaum mentions the distinctions of mild and malignant, *water* and *wind-pox*, pointed or *conoidal*, and *fluxed* or *confluent*, as in ordinary use among physicians and nurses. Some time after this (1690), the eruption is distinguished into genuine and bastard by Sydenham and Pechlinus, the last of whom positively asserts, that undergoing the latter will not secure from the attack of the former. The same distinctions were adopted by Morton, who further denominated the benign form of the eruption *chicken-pox*—the first time this term is employed by any medical writer in England; and by Gideon Harvey, who introduced the term *swine-pox* to designate that form of eruption which had been previously named *schaafs-blattern* in Germany, and who also believed in the iteration of the eruption in the same person. Our author, in short, shows, that the same distinctions in the form of eruption, and in general the same opinions on the possibility of its reappearance, under certain circumstances, in the person of the same individual, were maintained and inculcated by Lister, Hagendorn, Beherns, Low, Isaac, Juncker, Chesneau, and especially Zwinger; and concludes with the following summary.

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* It is perhaps difficult, if not impossible, to ascertain the antiquity of small-pox; and although physicians look on Abu-Bekr Alrazi as the first correct authority on the disease, there is reason to believe that it was known many centuries before. We ought to have noticed earlier the Fragment of a learned and ingenious Inquiry by Dr Willan, lately published by Dr Ashby Smith in his Miscellaneous Works. Dr Willan employs his acquaintance with the ancient authors to show, that there is reason to think that the small-pox eruption was one of those pestilent diseases (*λοιμοι, νοσοι λοιμικαι*) which so frequently appeared among the ancient Grecian states, and the desolating effects of which have formed points so conspicuous in their history, and occasionally even occupied the genius not only of the historians, but of the tragic poets. It is easy to see that the descriptions to which Dr Willan has referred are not sufficiently precise to warrant any very positive conclusions; and we do not therefore feel disappointed that Dr Thomson has not carried his researches on the First Period of the History of Small-pox to a period more ancient than the time of the Arabian authors.—Vide *Inquiry on the Antiquity of Small-pox, in Miscellaneous Works of Robert Willan, M. D., edited by Ashby Smith, M. D. London*, 1821.

" *First*, That a distinction has very early been made of small-pox into proper and improper, genuine and spurious; *secondly*, That all the varieties of this disease, whether mild or malignant, distinct or confluent, vesicular or pustular, genuine or spurious, chicken-pox, swine-pox, sheep-pox, wind-pox, stone-pox, and horn-pox, have generally, if not universally, been supposed to have had only one origin; and, *thirdly*, That although the possibility of the recurrence of this disease in the same individual was denied by Averrhoes, and by a very few who have followed him, yet that this was an opinion almost universally adopted, and that many examples of secondary small-pox have been adduced by practical authors, before the commencement of the eighteenth century." p. 30.

The *second* period of the chronological history of small-pox is much shorter, but more interesting, in consequence of the controvertible points to which the introduction of the practice of inoculation gave rise. It is well known that this practice, which was imported from the East about the year 1720, was as zealously reprobated and vigorously opposed by one part of the profession, as it was countenanced and recommended by the other. In consequence of this circumstance we find, that the medical authors who have written on the subject of small-pox, have, in general, either espoused or opposed the cause of inoculation; and their ideas of the natural history and definite character of the pure disease, have been influenced entirely by this bias. It is obvious, that it was the interest of those who contended for the protecting power of artificial variolation, to maintain the individuality of character and uniquity of occurrence in the eruption, and to deny strenuously the possibility of a variolous eruption occurring twice in the person of the same individual; and we accordingly find, that this is one of the remarkable results of Dr Thomson's inquiry into the history of this practice. It is certainly curious to remark, that the inoculators were, with few exceptions, unanimous in denying the iterated occurrence of small-pox, and contended, that the instances which the opposers of inoculation adduced, were either to be ascribed to imperfect inoculation, or were to be considered as a spurious and degenerate eruption, or were, in short, the result of a contagion totally different. It was in this manner that the opinion which was first entertained by Fuller in England, and Hosty in France, on the specific difference of chicken-pox and small-pox, was ultimately converted into an established doctrine by Heberden, and has since been universally adopted by the whole profession, both in this country and elsewhere, till the observations of Dr Thomson have led him to question the force of the evidence on which Dr Heberden founded his distinction. The authors whose writings Dr Thomson has consulted on these points, are so numerous, and the particulars so complicated, that it would be totally out of place to enter into the details at present; and we shall satisfy ourselves with exhibiting the conclusions which our author has, we think, very justly derived from his researches.

" 1*st*, That most, if not all, of the advocates for this practice denied the possibility of the secondary occurrence of small-pox, and were anxious to disprove this opinion, conceiving that its admission might be injurious to the cause of inoculation.

" 2*dly*, That notwithstanding this unwillingness on the part of inoculators to admit the occurrence of secondary small-pox, cases of this kind have often presented themselves to the observation of medical practitioners in the epidemic prevalence of this disease at different times, and in various countries of Europe, and that these cases have occurred in circumstances, and with symptoms which do not appear to have left any room for doubt, with regard to the genuine nature of the disease.

" 3*dly*, That the varioloid eruptions occurring in those who had previously passed through either natural or inoculated small-pox, have had the appellations applied to them which had been given during the first period to spurious or illegitimate small-pox, such as wind, water, horn, sheep, swine, and stone-pox, but apparently without the belief that these diseases arise from more than one contagion.

" 4*thly*, That the opinion suggested by Dr Fuller, that all the varieties of spurious small-pox are specifically different from one another, as well as from the genuine small-pox, does not appear ever to have been adopted by medical practitioners.

"*5thly*, That the crystalline, or lymphatic varioloid eruption, was considered by some of the advocates for inoculation in France as an eruption, different not only from small-pox, but also from chicken-pox.

"*6thly*, That all the different forms of the varioloid eruptions which had been previously considered by medical practitioners as spurious small-pox, were, about the year 1767, conceived by Dr Heberden to arise from a contagion specifically different from that of small-pox, and that to all the diversities of these eruptions he gave the specific appellation of the varicella, or chicken-pox, and, by means of this hypothesis, was enabled to account for the apparent secondary occurrenee of small-pox.

"*7thly*, That, though this opinion of Dr Herberden was almost universally adopted by medical practitioners, yet (that) a few practical observers were on particular occasions under the necessity of regarding that form of varioloid eruption, which had usually been denominated swine-pox, to be specifically different from chicken-pox, as well as from small-pox, because they had observed it to occur in those who had previously passed through both of these diseases.

"*8thly*, That chicken-pox was declared to be a disease equally capable of being communicated by inoculation as small-pox, and that many examples have been recorded by the first medical authorities of the inoculation of chicken-pox.

"*9thly*, That notwithstanding the prevalence of the opinion of the distinct nature of chicken-pox and of small-pox, and the assertion so frequently repeated, that these two diseases had been observed to prevail separately, there is no satisfactory proof to be found in our medical records, of their ever having done so; but many proofs of the fact, that all the varieties of the genuine, as well as of the spurious sorts of small-pox, have, in the same epidemics, come in and gone out together, in the same manner as it will be seen that they have uniformly been observed to do during the period of vaccination.

"And, *10thly*, That various authors have attempted to prove, by their observations and experiments, that small-pox virus may undergo such a deterioration in its qualities from heat, dilution, age, &c. as to render infection with it no security against small-pox, either natural or artificial, even though it may have been sufficient to produce febrile action, and a varioloid eruption, so like that of *true* inoculated small-pox, as not to be distinguishable from them by the appearances which present themselves." pp. 137—139.

The third period of the chronological history of small-pox extends from the discovery of vaccination to the present time; and though it do not exceed the length of 24 years, yet during that brief space, it has occupied an infinitely greater proportion of the attention of the profession, than any other disease has ever done during a like period; and the researches to which it has led have more effectually contributed to illustrate the nature and laws of contagious poisons, than had been done by entire ages of previous observation. We have already said, that the researches of our author have shown, that, at the commencement of the last period, the opposers of the practice of inoculation were uniformly distinguished by maintaining the iterated occurrence of the natural disease, and the existence of varieties in the eruption; we have now to observe, that this belief was after the discovery and introduction of vaccination transferred to those who opposed and reprobated this latter practice. We will not endeavour to save our readers the trouble of perusing this part of our author's history, by any abstract or abridged account of it. It involves so many individual points, and embraces so wide a range of controversial and qualified opinions, with so many varied explanations of anomalous or unexpected facts, that we cannot safely offer to condense or generalize in any other manner than has been done by Dr Thomson himself. This consists of a twofold series of conclusions, one of which is derived from the review of the observations and opinions of medical practitioners in this country; the other from those of practitioners in various countries of Europe, in America, the East and West Indies; and these conclusions are respectively applicable to the occurrence of varioloid eruptions in vaccinated persons in these different countries.

In reference to Great Britain, Dr Thomson infers;—

"1. That from the introduction of vaccination, up to the present time, eruptions resembling small-pox have been observed to occur in a greater or less proportion of those who had appeared to have passed through that process in a regular and satisfactory manner.

"2. That these eruptions have occurred during the epidemic prevalence of natural small-pox, and have appeared to bear a certain proportion, in their frequency and severity, to the extent and malignity of that disease.

"3. That in the earlier period of vaccination, these eruptions were generally regarded as chicken-pox; but in the progress of this practice they came to be considered by medical practitioners sometimes as chicken-pox, and at other times as small-pox modified by vaccination, and that they have not unfrequently been denominated *anomalous* eruptions.

"4. That the diagnosis between chicken-pox and modified small-pox has usually been allowed to be very difficult, on account of the great resemblance which these eruptions bear to one another; and accordingly, it has not unfrequently happened, that the same individual eruption, which had been denominated chicken-pox by one practitioner, has been pronounced by another to be small-pox modified by vaccination.

"5. That the descriptions given of chicken-pox by Drs Heberden and Willan, having included appearances similar to those observed in secondary small-pox, and in small-pox modified by vaccination, it became necessary, in order to distinguish these two forms of varioloid eruptions from chicken-pox, to seek for some more precise characteristics of this disease.

"6. That the first attempt in this country to fix more precisely than had formerly been done, the diagnosis between chicken-pox and small-pox, appears to have been made in 1809 by Mr Brown of Musselburgh.

"7. That to the diagnostic marks of chicken-pox, suggested by Mr Brown, there have been lately added—the disease being incommunicable by inoculation—the susceptibility in those who have passed through this form of varioloid eruption of regular cow-pock infection; (See Account of Varioloid Epidemic, &c. pp. 73, 75, and 188.) and the eruption being bullose, not cellular like small-pox.

"8. That none of those who contend for the existence of this species of chicken-pox, as distinct from modified small-pox, have given us any information with regard to the duration of the disease which they have denominated chicken-pox, nor (or ?) of the proportional number of cases in which this particular form of eruption occurs in individuals who have neither had small-pox nor cow-pox, compared with that in which it occurs in those who have gone through these diseases.

"9. That the vesicular or bullose chicken-pox have been observed to arise in unvaccinated infants from the contagion of small-pox, and that this form of varioloid eruption has not hitherto been observed to prevail epidemically, independently of small-pox.

"10. That it was originally supposed, and is still by some believed, that those who pass through cow-pock inoculation in a regular and satisfactory manner, are by this process rendered wholly unsusceptible of small-pox contagion.

"11. That those who have adopted this belief have at different times endeavoured to account for the occurrence of small-pox in those who have been vaccinated, by supposing that the vaccination had been *imperfect*.

"12. That this imperfect vaccination has been supposed to have arisen from various causes. 1*st*, From inoculation with the matter of spurious cow-pox in the cow; 2*d*, From inoculation with equine matter; 3*d*, From inoculation with matter taken at too late a period from a vesicle produced on the human body, or kept too long after having been taken; 4*th*, From the production of a local pustule by genuine cow-pox matter, without constitutional affection; 5*th*, From the rupture, accidental or intentional, of the cow-pock vesicle, or from exhaustion of its contents; 6*th*, From the occurrence of cutaneous eruptions during the progress of vaccination; and, 7*thly*, From too small a number of punctures.

"13. That it is to the three last of these causes that those who believe in the *preventive* power of vaccination have chiefly attributed the occurrence of small-pox in the vaccinated, during the late very general prevalence of that disease.

"14. That there does (do?) not seem to be any sufficient grounds for believing that cutaneous eruptions have been more frequent among those of the vaccinated who have been afterwards affected with small-pox, than among those who have escaped the contagion of this disease.

" 15. That the records of vaccination abundantly testify, that during the first ten years of this practice, there was obtained from inoculation with one or two punctures, a security equal to, if not greater, than that which has since been supposed to be obtainable only by making three or four punctures.

" And, *lastly*, That it has at length been acknowledged by the Board of the National Vaccine Establishment, 'that the pretensions of vaccination to the merit of a perfect and exclusive security in all cases against small-pox, were admitted at first rather too unreservedly.' " pp. 282–286.

In reference to other countries, as France, Germany, Italy, Holland, America, and our colonial establishments, Dr Thomson infers;

" 1*st*, That from the first introduction of vaccination into these countries, varioloid eruptions have been observed to occur in the vaccinated, sometimes coexistent with, and at other times subsequent to, cow-pock inoculation.

" 2*d*, That these eruptions have, in some countries, particularly in France, been regarded as the genuine product of vaccine virus, and have accordingly had the epithets applied to them of *vaccine, vaccinal*, and *vacciniform* eruptions.

" 3*d*, That in those cases in which it seemed to the observers to be doubtful whether the varioloid eruptions coexistent with, or succeeding to vaccination, arose from the infection of cow-pox, of small-pox, or of chicken-pox, they have not unfrequently been termed *anomalous eruptions*.

" 4*th*, That the *vaccinal* and *anomalous* eruptions have exhibited appearances similar to those eruptions which, in this country, have been sometimes denominated chicken-pox, and sometimes small-pox modified by vaccination, as is evident from the appellations which they have received, of *vesicular*, *pustular*, and *horny* eruptions.

" 5*th*, That inoculation performed with the matter of these general vaccinal eruptions, has most commonly produced a *local* affection only; but that in a few instances, a *general* eruption has been produced similar to that from which the matter had been taken.

" 6*th*, That in those countries (Prussia in particular) in which the varioloid eruptions occurring after vaccination, have not been supposed to proceed from the action of cow-pock virus, they have been supposed to arise either from the infection of chicken-pox, or from that of small-pox.

" 7*th*, That of those who have supposed that the varioloid eruptions in the vaccinated, have proceeded from the contagion of chicken-pox, some (as M'Donald and Heim) have believed this disease to be a modification of small-pox, and others, a distinct and specific disease.

" 8*th*, That under the appellation of *spurious* small-pox, have been included by practitioners all those various forms of varioloid eruptions which I have described in my former letter, (from p. 20 to 27, and from p. 30 to 44), as having occurred during the late varioleus epidemic in Edinburgh, in those who had previously gone through either variolation or vaccination; and that of these forms of varioloid diseases, the mild vesicular eruption, or *new chicken-pox*, has constituted but a small proportion even in the vaccinated, and a still smaller proportion in the unvaccinated.

" *9th*, That the numerous diagnostic characters between *spurious* and *genuine* small-pox, so ingeniously suggested by Heim, are by himself allowed to be difficult in their application to individual cases.

" *10th*, That the matter of the eruptions considered to be chicken-pox by Heim, and by those who have adopted his diagnostic characters, was capable of producing, and actually has produced, general eruptions.

" *11th*, That the matter of eruptions, exhibiting in every respect the appearances which occur in small-pox *modified* by vaccination, has frequently failed in producing a *general* eruption, though the *local* pustule excited by it has not unfrequently been accompanied by a febrile action.

" *12th*, That in all places where vaccination has not been universally adopted, the varioloid eruptions which have been observed to occur in the vaccinated, during the prevalence of variolous epidemics, have been usually regarded by the enemies of vaccination as the genuine product of small-pox contagion, and as proofs of the failure of that practice.

" *13th*, That the varioloid eruptions which have been observed to occur in the vaccinated, have been represented by the advocates of vaccination in other countries as well as in Britain, as the consequences either of *imperfect* vaccination, or as cases of *chicken-pox* or *spurious small-pox*.

" *14th*, That in every country in which small-pox have prevailed epidemically, since the introduction of vaccination, spurious small-pox have been observed, and have attacked chiefly the vaccinated, or those who had previously passed through either the natural or inoculated small-pox; and, accordingly, that in every town and village in these kingdoms, in France, Wirtemberg, Holland, America, the West Indies, and the Island of Ceylon, in which the late small-pox epidemic has occurred, small-pox and chicken-pox are recorded to have *coexisted*.

" *15th*, That the vaccine matter which has now been employed for twenty years upon the continent of Europe, in America, and in both the Indies, as well as in this country, does not appear to have suffered any deterioration in its qualities from cutaneous eruptions, or other causes, but has continued, during the whole of this period, to communicate to those inoculated with it, all the security it has ever done against the attacks of small-pox, and against the dangers of that disease.

" *16th*, That the *vaccine* and *varioloid* eruptions seem to have occurred as frequently in those countries in which the operation of vaccination has been performed, with three, four, or more punctures, as in Scotland and America, where that operation is usually performed by making one or two punctures only.

"17*th*, That the possibility of the occurrence of genuine small-pox after perfect vaccination, which was so long and so generally denied by the Central Committee of Vaccination in France, and by the advocates of that practice in other countries, has at last been admitted to occur in proportions, varying from one or two in a hundred, to one in several millions!

"18*th*, That the epidemical small-pox, which have spread themselves so extensively over the greater part of the globe since the year 1814, have been observed, in almost every place in which they have occurred, to attack a considerable number of those who had previously passed through small-pox, and have rendered the possibility of the occurrence of *secondary* small-pox, which was so strenuously denied by the first medical authorities, a point about which there can now no longer exist any just grounds for difference of opinion.

"19*th*, That while the epidemical small-pox, which have prevailed during the last seven years, have been every where of a most malignant kind, destroying a large proportion of the unvaccinated attacked by them, very few examples have occurred of their having proved fatal in those who had gone through the process of vaccination; and,

"*Lastly*, That the diminished susceptibility for small-pox contagion,—the general mildness of the disease when it does occur,—and the almost universal security from danger in the vaccinated, must now be considered as the real advantages which have hitherto been derived from the inestimable discovery of Dr Jenner." pp. 387-392.

Such are the results which this acute and judicious observer has obtained, not merely from the careful contemplation of the phenomena which he has personally witnessed, but from the attentive and deliberate collation of the best authorities on the phenomena observed both in this and other countries, where variolous diseases prevail, and vaccination is practised. It will be seen, that the researches and investigations which have been instituted, both by Dr Thomson and others, especially in consequence of the epidemic occurrence of variolous and varioloid eruptions after vaccination, have added very considerably to our knowledge of the natural and genealogical history of the disease. Although it has been fortunately proved that we did not overrate the powers of the vaccine contagion in counteracting the malignity of the varioloid, and that we were not trusting to a useless or inert agent, yet we have learned, that at the time when this antidote was proposed, we were not so intimately acquainted with the nature of small-pox and its varieties, as our subsequent experience has enabled us to be; and one good effect of this is, that while we know and can estimate more precisely the influence which the vaccine disease exercises over the variolous, we can now explain more satisfactorily those anomalies, the occurrence of which, in vaccinated individuals, occasioned such perplexing exceptions to principles believed to be certain, and threatened to render even the antivariolous power of vaccination an unfounded fiction. We discover, in short, that the irregularities, deviations, and apparent exceptions to that which was originally believed the natural and true form, are none other than those which existed before the introduction of the practice of vaccination, and might, with equal readiness, have occurred in the persons of individuals who had passed through the variolous disease, but whom the vaccine had never affected. On the actuality, as it may be named, of the occurrence of varioloid eruptions after true small-pox, inoculated small-pox, or even vaccination, we cannot speak so confidently as Dr Thomson is assuredly qualified to do; but we must say it appears to us singular enough, that, with such a body of evidence as Dr T. has shown may be collected relative to the natural history of variolous eruptions and their modifications, the facts relating to the anomalies and deviations should have been so studiously suppressed or denied, both by inoculators and vaccinists, that they seem to have been completely forgotten or unknown, till the actual experience of the late epidemic has at length brought them into notice. It is easy to see, that if this unfair method of managing both inoculation and vaccination had not been employed, we should have been spared both the foolish controversies, and the irrational errors into which we have been led in regard to iterated variolous and post-vaccine eruptions. We may now regard it as established, that the variolous poison generates not only a pure and uniform pustular disease, passing through regular stages of growth, maturity and decline, but also eruptions not strictly pustular, and which do not observe the same regularity in their phenomena; that some of these eruptions may be of a tubercular character, slow in their progress, and imperfect in their suppurative process; others of a lymphatic or vesicular nature, affecting apparently the cutaneous tissue less deeply, and consequently not presenting the distinct suppurative phenomena of the true pustule, and others in which the character may be so mixed, and the phenomena so irregular, as to defy any classification whatever. We may now conclude, that these modifications in the morbid phenomena, arising from the operation of the same agent, are to be ascribed, as our author has shown, to differences of individual constitution, to peculiar states of the atmosphere, and occasionally to the particular circumstances in which the individuals exposed to the variolous poison may be placed. We think, further, that it is consonant to correct observation to assert, that any one of these varieties of varioloid eruption does not render the human body insusceptible of another, and consequently that the same contagious poison may twice, perhaps oftener, give rise to a train of morbid phenomena. With these inferences before us, we cannot discover that the iterated occurrence of the pure and perfect variolous disease in the same individual can be established with a certainty which would satisfy every inquirer; and the readers of Dr Thomson's sketch will perceive, that it is so difficult to determine the precise marks of a perfect and unequivocal eruption, and, providing two eruptions occur in the same person, so difficult to institute an exact comparison, and establish their absolute identity or similarity, that this point must necessarily remain undecided. It is, further, of no practical importance; and it is sufficient to know that various eruptions proceed from the same morbid agent.

Although it is probable that the artificial communication of the variolous poison may have some influence in modifying the nature of eruptions occurring after its employment, yet it does not appear, from the investigations of our author, that this modification is so notable as might be expected. The very ample examination of eruptions, whether epidemic or sporadic, subsequent to the introduction of the practice of inoculation, presents, so far as we can discover, no cases which cannot be paralleled in those observed previous to this time.

Lastly, on the possibility of a specific difference in the nature of the morbid poison, we feel some difficulty in forming a decided opinion. Our readers are aware, that the learned author of this work is peculiar in believing, that no evidence has been yet adduced to demonstrate that a characteristic difference exists between the contagious agent which gives rise to small-pox, and that which generates the chicken-pox eruption. It cannot be denied, that the arguments necessary to establish the specialty of character must be of a positive and affirmative nature; and it is equally undeniable, that none but negative proofs have been hitherto adduced. In such circumstances, we believe we must infer, that the hypothesis of Dr Heberden was admitted on insufficient evidence, and would require to be again subjected to a strict and critical investigation, before it can be considered the object of any positive or decided conclusion.

PART III.

MEDICAL INTELLIGENCE.

On Thursday, 1st August, the Senatus Academicus of the University of Edinburgh conferred the degree of Doctor in Medicine on the following Gentlemen (114 in number) after having gone through the appointed examinations, and publicly defended their Inaugural Dissertations :—

Of Scotland.

Robert Blackburn, De Spinæ Carie.
Alexander Browne, — Typho.
James Carnie, . — Frigore et Calore.
Charles C. Cheyne, — Purpura.
Wm. Dumbreck, — Inflammatione Venarum.
James Gregory, — Gangræna Nosocomiali.
Wm. Henderson, — Pneumonia.
Alex. Jamieson, — Concoctione Ciborum.
Geo. W. Johnston, — Cholera Indica.
William Johnstone, — Exercitatione.
Donald M'Intosh — Vaccinia.
G. M. M'Lachlan, — Dysenteria.
A. F. M'Lauchlan, — Dysenteria.
Alexander Morton, — Febribus Epidemicis.
Alexander Ogilvie, — Uteri Inflammatione.
Thomas Peacock, — Dysenteria.
Andrew Ranken, — Hydrophobia.
Thomas Russell, — Scarlatina.
David Scott, . — Respiratione.
John Shirley, — Principio Vitali.
James F, Steuart, — Rabie.
Thomas Ward, — Pleuritide
William Watson, — Ventriculi Scirrho.
John S. Waugh, — Electricitate.

From England.

James H. Archer, — Enteritide.
Thomas Bishopp, — Hernia.
Ed. Blackmore, — Sanguinis Detractione.
George Carr, . — Pneumonia
Edmund J. Clark, — Phlegmasiis Pulmonalibus.
Samuel Clater, — Calorici Natura.
Frederick Cobb, — Rabie Canina.
Wm. T. Coleman, — Vita et Morte.
John Edwards, — Cynanche Tracheali.
Edward B. Eve, — Corde.
George J. Everest, De Cordis Aneurismate.
John Freer, . — Sanguine Mittendo.
Anthony Gapper, — Pneumonia.
Thomas Harland, — Aquis Mineralibus.
Wm. T. Haycraft, — Quibusdam remediis Sedantibus.
Samuel Hill, . — Syphilidis curatione antiphlogistica.
John Hodson . — Concoctione.
William Jackson, — Aere commune
James Kane, . — Concoctione Ciborum.
R. H. Keenlyside, — Dyspepsia.
George K. Prince, — Nova ratione inter Morbos Pectoris discernendi.
F. H. Ramsbotham, — Hæmorrhagia Uterina.
James Reid, . — Amaurosi.
Mat. Scholefield, — Theoria Inflammationis.
Wm. H. Stephenson, — Hæmorrhœa Petechiali.
Herbert Taylor, — Cynanche Tracheali.
George Turner, — Nova Doctrina Phrenologica.
John Wayte, . — Tetano.
John Webster, — Purpura Hæmorrhagia.
William Whymper, — Ophthalmia Membranarum.
John Wordingham, — Pulmonis Inflammatione.

From Wales.

John B. Davies, — Cynanche Laryngea.

From Ireland.

Richard Abell, — Hygeia.
William Belcher, — Febre Hectica.
Michael Brody, — Dyspepsia.
Joseph Buckley, — Typho.
John Clendinning, — Hydrocephalo Acuto.

James Collins, De Phthisi Pulmonum.
Peter Cryan, . — Pneumonia.
Michael Devereux, — Hepatitide Chronica.
William Drew, — Enteritide.
William Duncan, — Paralysi.
John Fawcett, . — Cholera Morbo Indiæ.
Thomas Fisher, — Insania.
John Fitzgerald, — Dysenteria.
Richard Frith, — Peritonitide.
Charles D. Fry, — Anasarca.
John Griffith, . — Apoplexia.
John Huggins, — Diabete.
Russell P. Hughes, — Fabrica Oculi.
John H. Jagoe, — Febre Hectica.
L. C. Kinchela, — Angina Pectoris.
George Loane, — Tetano.
Patrick R. Lynch, — Hepatitide.
D. H. Macadam, — Calculo Urinali.
Patrick M'Ternan, — Febre Flava.
William Milligan, — Cholera Epidemica.
Henry Newenham, — Erysipelate.
Philip O'Leary, — Apoplexia.
John O'Regan, — Causis Febrium Epidemicarum.
Patrick O'Ryan, — Febre Continua.
O'Neil Quin, . — Febre Continua quæ nuper in Hibernia grassata est.
James Sheils, . — Phthisi Pulmonali.
Alexander Sinclair, — Dysenteria Tropica.
William Sinclair, — Pneumonia.
Peter Smithwick, — Hepatitide Acuto.
Richard Tate. . — Tetano.
Ben. Thomson, — Febrium Contagiosarum Natura et Curatione.
Edward Townsend, — Aneurismate.
Patrick Traver, De Apoplexia Sanguinea.
John W. Watson, — Quinto Nervorum Pari.
R. T. Woodhouse, — Melæna.

From Jamaica.

George S. Coward, — Capitis Plagis.
John Cox, . — Malignis Testis Vitiis.
George Swaby, — Hydrope.
Samuel Tucker, — Urethræ Stricturis.
Thomas Turnbull, — Inflammatione Hepatis Acuta.

From Barbadoes.

James H. Alleyne, — Inflammatione longa Cerebri.
William Drayton, — Phthisi Pulmonali.
James Russell, — Mania.
Charles D. Straker, — Phthisi Pulmonali.

From Antigua.

Samuel M. Sheriff, — Febre Flava.

From St Vincents.

S. F. Carmichael, — Hepatitide Acuta.

From the Island of Mont-Serrat.

John Furlonge, — Cerebro Concusso.

From the Island of Nevis.

Wm. T. Nicholson, — Cerebri Concussione atque Compressione.

From the Danish West Indies.

W. Von Cronenberg, — Gonorrhœa Virulenta.

From America.

Robert L. Milligan, — Potu Assimilando.

From the East Indies.

William H. Cock, — Purpura Hæmorrhagica.
William Kerr. . — Ictero.

The following Medical Lectures in the University of Edinburgh, commence on Wednesday, October 30th.

Dietetics, Materia Medica and Pharmacy, Dr Duncan, jun. 8, *a. m.*
Practice of Physic, Dr Home, 9, *a. m.*
Chemistry and Chemical Pharmacy, Dr Hope, 10, *a. m.*
Theory of Physic, Dr Duncan, sen. and Dr Alison, 11, *a. m.*
Hospital, 12, *noon.*
Anatomy, Pathology, Dr Monro, 1, *p. m.*
Principles and Practice of Surgery, Dr Monro, 4, *p. m.* Nov. 13th.
Midwifery, Dr Hamilton, 3, *p. m.* Nov. 12.
Clinical Medicine, Dr Duncan, jun. and Dr Home, 4, *p. m.* Nov. 12th.
——— Surgery, Mr Russell, 5, *p. m.*

Practical Anatomy under the superintendence of Dr Monro.

During the Summer Session, Lectures will be given on the following Branches of Medical Education :—

Botany by Dr Graham.
Midwifery by Dr Hamilton.
Clinical Medicine by Dr Duncan, junior.
Clinical Surgery by Mr Russell.
Medical Jurisprudence by Dr Christison.

LECTURES ON MEDICINE.

Theory and Practice of Medicine.

Dr Uwins will commence his Autumn Course of Lectures on the Theory and Practice of Medicine on Tuesday the 8th of October, at a Quarter past Seven in the Evening.

Lectures on Midwifery.

Dr W. P. Lauder, Physician-Accoucheur to the *Edinburgh New-Town Dispensary*, will commence his *Winter Course* of *Lectures* on the *Theory* and *Practice* of *Midwifery*, and the *Diseases* of *Women* and *Children*, on Wednesday the 13th of November, at 3 o'clock, *p. m.*

These Lectures qualify for Surgeon's Hall; and to Gentlemen desirous of acquiring a practical knowledge of Midwifery, very extensive opportunities will be afforded, under the immediate superintendence of Dr Lauder.—13, *York Place, September*, 1822.

Lectures on the Institutions of Medicine.

Dr Dewar's Lectures on the Institutions of Medicine will commence on Tuesday the 12th of November, at 1 o'clock, *p. m.*, at No. 11, Infirmary Street.

Report of Diseases of Birmingham. By JOHN DARWALL, M.D. *one of the Physicians to the Birmingham Dispensary.*

Diseases of Birmingham, from January 3d to July 3d, 1822.

Dyspepsia	70	Splenitis	1
Bronchitis Chronica	16	Hæmoptysis	3
Impetigo Scabida	1	Sciatica	2
Tænia	2	Porrigo larvalis	1
Pneumonia	6	Ecthyma	1
Phthisis Pulmonalis	34	Hæmatemesis	1
Epilepsia	3	Calculus	1
Hepatitis Chronica	4	Synochus	7
Asthma	14	Catarrhus	8
Erysipelas	2	Dolor Brachii	1
Amenorrhœa	8	Hemiplegia	1
Ulcera Tonsillarum	2	Atrophia	2
Ascites	2	Roseola	1
Tussis	2	Concussio	1
Nephralgia	1	Colica	1
Anasarca	2	Pyrosis	1
Diarrhœa	2	Pleuritis	2
Cynanche Tonsillaris	6	Hysteritis	1
Angina Pectoris	1	Leucorrhœa	4
Ulcera Oris Tincæ	2	Cynance Trachealis	1
Mania puerperalis	1	Rheumatismus	18
Scarlatina Anginosa	7	Dysenteria	4
Menorrhagia	4	Ileus	1
Hydrocephalus	2		
Carditis	1	Total	255
Cephalæa	7		

This Table of diseases comprehends those only which have been under my own personal attendance, and is more especially confined to one district, containing rather less than a third of the whole population. But, from inquiry among others, I have reason to believe it a fair account of the general nature of disease throughout the town. The numbers are fewer than appear in the Dispensary books, as they are there enumerated by the tickets; and it frequently happens, that one case obtains several recommendations.

The poor in Birmingham are, for the most part, well lodged and fed. They live either in wide streets or tolerably open courts; and there are few of those confined situations, which prove so destructive to the health of the humbler inhabitants of Liverpool and Manchester. When trade is good, which, as far as the labouring classes are concerned, is the case at present, they live well; and there are very few who do not every day obtain animal food. From these circumstances, the occurrence of fever is very rare, and no epidemic has existed in the town for many years. The few cases of synochus, the Table shows, may be taken as indicating its general frequency; and they were many of them so slight as scarcely to deserve notice.

The most frequent, as well as the most troublesome disease of the town is dyspepsia; and the cases which presented themselves at the Dispensary exhibited every variety, from mere uneasiness after eating, to the more serious attacks upon particular organs. In the early part of the year, males were more frequently the subjects than females; but as it has advanced, these last have more than doubled the former. The most usual form was, great languor, nausea, sometimes vomiting, flatulence, weight at the stomach after eating, with pain in the region of the pylorus, increased by pressure. The bowels, though not always costive, were always disordered; and, even when regularly moved, the evacuations were of an improper colour, and usually very fetid. In women, the catamenia were also irregular, seldom being in proper quantity or appearance, even when they were present at the accustomed periods.

The treatment was always commenced by evacuating the bowels freely, generally with castor oil, but where there seemed any peculiar vitiation of the biliary secretions, mercurial purgatives were employed. Whenever pain was felt in any part of the abdomen, and increased by pressure, leeches were applied, and the relief they afforded was very remarkable. The violence of the pain was always abated, and when it had been aggravated at intervals, the paroxysms were much milder. It was frequently necessary to repeat them several times, and afterwards to apply blisters; but the latter were never useful, excepting in very slight cases, till local bleeding had been premised. The efficacy of tonic medicines was much increased by the previous application of leeches. In a young lady, this was remarkably evident. In this patient, mental anxiety had produced general disorder of the digestive function, with severe pain at the stomach, and an extensive eruption of the *impetigo figurata*. From a dislike to leeches, they were at first postponed, and the common tonic medicines administered, with attention to the bowels. Under this treatment, she made no progress; but after the local detraction of blood, her health rapidly improved, and the eruption disappeared, the same medicines being prescribed both before and after the leeches.

The prussic acid, which has been lately so much recommended, certainly affords temporary relief; but I should much question, if an opiate of any kind would not afford it equally. The pain in these cases appears to be inflammatory, and is certainly most permanently relieved by remedies appropriated to inflammation. It is not therefore very probable that sedatives can be of any real utility.

The connexion of dyspepsia with some of the more serious disorders of the human frame, was sometimes very visible. In several instances, a low inflammatory action of the peritoneum was induced: in others, the bronchi were the organs most affected; and I should be inclined to say, that these were more frequently the seat of disease, after dyspepsia, than the proper tissue of the lungs. The most usual connexion, however, was with disorders of the head, especially in May and June, which, with the exception of a few days in May, were very hot months. Many of those who first applied to the Dispensary on account of dyspeptic symptoms, were attacked with severe headaches, vertigo, and tinnitus aurium, and required very copious bleedings to overcome them. When either the head or lungs were disordered, the affection of the stomach was relieved.

The disease of most frequent occurrence next to dyspepsia was phthisis pulmonalis. This was certainly, in many instances, to be referred to the employments carried on in the town, acting probably upon constitutions predisposed. In some of these cases great relief was afforded, by enjoining absence from labour. In a button burnisher, in whom there was evidently an increased determination of blood to the part, the symptoms several times disappeared, under the use of digitalis, but as often returned upon resuming his employment. For this disorder, also the prussic acid has been lauded. I can only say, that, after numerous and very attentive trials, I have not seen the slightest relief afforded by it, while many patients are unable to take the smallest dose from its occasioning nausea and vomiting. The only instance in which this dangerous medicine seemed really useful, was a disease of the heart, accompanied with great pain, palpitation, and copious expectoration. It is but right to add, however, that all these symptoms had raged, and disappeared in a similar manner, before this fashionable medicine was in vogue.

In the remaining cases, there is very little worthy of remark. Determination of blood to the head was very prevalent in May and June, and required very active depletion. The necessity of this practice in the early periods of the case, cannot be too strongly inculcated. From a contrary system, I have seen much mischief done; and even when recovery has taken place, a disease has dragged on through weeks and months, which, under a different treatment, there was good reason to suppose would have disappeared in a few days. The depression of spirits which is frequently so distressing, is much more completely and permanently relieved by depletion, than by the whole farrago of stimulant and nervous medicines. This state of distress is distinguished from that occurring after mere dyspepsia, by being more urgent on first waking in the morning.

The case of *mania puerperalis* happened two months after delivery, and was fatal. Local depletion and purging had been largely employed before I saw her, and she died the following day. The body was examined attentively, but there was not the slightest vestige of disease in any part. The disease named *dolor brachii* in the table, was a very painful affection of the arm, in the spot where the deltoid muscle is inserted, and resembled the pain of tic doloureux. After trying many remedies under different physicians, she has been cured by the application of leeches.

The oil of croton I have tried very extensively, and it is certainly a valuable addition to medicine. It has generally produced nausea and vomiting, but not so frequently griping. One circumstance attends its operation, which I have not yet seen noticed, viz. the very little consitutional derangement which it leaves. After the operation of other drastic purgatives, a feverishness and loss of appetite remains for a considerable time, and the catharsis from elaterium, is frequently alarming. But I have seen none of these consequences after the croton oil, which, however violently it may operate upon the bowels, has not, in any instance in which I have given it, (and I have given it in upwards of forty), left the slightest disorder or uneasiness. In other respects, my experience accurately corresponds with the accounts which have been given of it by other writers.

Addition to Dr Proudfoot's Topographical Pathology of Kendal.

In page 391, it is stated that, "of the 3900 children born (in Kendal), according to the computation of mortality with Dr Heysham's Table, 1249 ought to have died under five years of age, whereas only 1085 are found in that column.". This, as far as it goes, is pretty nearly correct; but it then escaped my observation, that this statement included the deaths under five years of age, for a period of eleven years, without at the same time accounting for the births among a population of 2182 who reside in the vicinity of Kendal, and that bury in Kendal churchyard. If we estimate the number of births among the people in the vicinity, with those in Kendal, they will be found to amount to about 896, which, being added to 3900, makes the total number of births 4796. Now, if out of 10,000 children born, 3203 died under five years of age, as appears from Dr Heysham's Table, in the same proportion, 1536 ought to have died under five years of age, out of the 4796 children born during the period alluded to. Supposing that 34 of the 92 Dissenters, whose ages could not be ascertained, to be added to the column *dead under* *five years of age*, will make the whole amount to 1119, which, being subtracted from 1536, gives a saving of 417 lives in eleven years. This has been ascribed to the practice of vaccination, and is a fact which ought not to have been overlooked.

Of the 10,000 children born in Carlisle, 5075 arrived at the age of 40. In Kendal, according to the mortality as shown by the Table alluded to, one half of the deaths take place before completing the twenty-seventh year. How does it happen, that, notwithstanding this diminution of mortality under five years of age by the practice of vaccination, one half die in Kendal thirteen years earlier than at Carlisle, before its introduction? Is the mortality in this country greater than it was when Dr Heysham kept his Tables? or, though there is a diminution of mortality under five years of age by the practice of vaccination, are those who have been vaccinated rendered more liable to be cut off by other diseases?

In hilly districts, half the numbers born live to the age of forty-seven; but in marshy districts only to the age of twenty-five. Some cities give a mortality of one in nineteen annually, while healthy country villages are reported so high as one in fifty or even sixty.

Kendal, 26th August, 1822.

LECTURES ANNOUNCED.

The Medical Lectures in the College Street Theatre of Anatomy, Glasgow, will commence on Tuesday, 5th November; on the Theory and Practice of Medicine by Dr Robertson, Physician to the Royal Infirmary; on Anatomy and Surgery by Mr Mackenzie; and on Midwifery by Mr Armour.

ERRATA.

In the Notices to Correspondents in No. LXXII, and in page 410, in the title of Dr Wadell's Communication, "Dr Q. Adam" is printed by mistake for "Dr J. Adam;" and the running title should be "Dr Wadell's Case" instead of "Dr Adam's Case."

In page 486, line 11, *for* "from the ovaries to the uterus," *read* "from the ovaries to the vagina."

In page 326, third line of the note, *for* "under," *read* "used in."

In page 614, line 32, for "*discrepartia*," read "*discrepantia*."

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